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33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1
 Telephone: WHIttehall 9233 (12 lines) Telegrams: "Trazette, Parl, London"

BRANCH OFFICES

GLASGOW: 87, Union Street Central 4646
 NEWCASTLE-ON-TYNE: 21, Mosley Street Newcastle-on-Tyne 22239
 MANCHESTER: Century House, St. Peter's Square Central 3101
 BIRMINGHAM: 90, Hagley Road, Edgbaston Edgbaston 2466
 LEEDS: 70, Albion Street Leeds 27174

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Railway Freight Congestion

SINCE last week, when British Railways announced that it would be necessary to curtail the summer services because of the congestion of freight at many places, there has been a marked change in the first public reaction to the announcement. From disappointment and criticism at the decision to lop a fortnight off the beginning and the end of the period of the summer services, attention has become focused on the shortage of manpower in the operating grades which occasioned the step by the Railway Executive. It has become widely appreciated that action extraneous to any that the Executive itself can take must be considered with a view to making good the deficiencies in footplate and similar staff. In the meantime, the freight position was eased a good deal over the weekend as the result of intensive working. Some assistance was obtained from the fact that, for the first time for some months, there was no Saturday working at the collieries. It has been estimated in the past that the Saturday shifts require about 10,000 wagons to remove the coal produced. At some centres it has been possible to remove or reduce the restrictions on the acceptance of traffic. The incidence of holidays both in the mines and other industries may tend to reduce the amount of traffic forthcoming over the next three months, and during this time the most strenuous efforts are to be made to clear accumulations of freight so that a clean start can be made in the autumn. Nevertheless, the success of this effort must

be dependent ultimately on the number of men available to work the trains. Until that problem has been overcome there can be no optimism as to the freight position next autumn.

British and American Railways

ELSEWHERE in this issue is published a letter from Mr. John Elliot, Chairman of the Railway Executive, referring to an editorial note in our June 1 issue in which we commented on an interview he had given at Southampton on his return from the United States. Mr. Elliot confirms our suspicion was well founded that the report of his remark suffered in the condensation which is often necessary in the daily press because of shortage of space. He points out that he referred in the first place to the fact that in America there has not been the limitation on capital expenditure, the shortage of materials, or the manpower problem which afflict British railways. With these advantages, it is but natural that in a progressive and rapidly developing economy such as the United States great strides have been made in its railway system. There the major problems have been in meeting intensive road and air competition, and all credit is due to them for the steps they have taken in providing passenger amenities to offset this factor. It is difficult to make a clear-cut comparison between any two railway systems in different parts of the world, for the conditions of operation usually are dissimilar. British railways, quite apart from the disabilities from which they have been suffering since the beginning of the war, are subject to more intensive and complex operation than any others.

Aid for the Thailand Railways

THE Economic Co-operation Administration has authorised the use of \$1,064,500 in United States aid funds to assist the Royal State Railways of Thailand to maintain its rolling stock. This is an emergency project, additional to a long-term plan for the reconstruction and modernisation of the railway's workshops, for which part of a \$3,000,000 loan by the International Bank for Reconstruction & Development is being used. A further sum of \$48,000 from E.C.A. funds has been authorised to send two American railway specialists to advise and assist the Thai Government on railway problems, and an American railway accountant to introduce modern methods of cost-keeping, accounting and depreciation control. The E.C.A. funds will cover the purchase of wagon wheels, axles, boiler stays, iron bars, steel plates, sheets, rivets, angles, channels, and miscellaneous repair materials. The system, which is 2,045 miles long, all metre-gauge, operates with 367 steam locomotives, 15 diesel and diesel-electric locomotives, 494 coaches and 5,740 wagons. War damage and ordinary wear and tear have put some 150 locomotives and 1,500 wagons out of commission; and it is reported that 100 locomotives and 1,000 wagons require major repairs. The railway depends on its central Makasan shops, near Bangkok, to maintain its rolling stock. Bombing in 1944 left more than half the buildings and machinery destroyed or seriously damaged. These are to be rebuilt and modernised with the I.B.R.D. loan.

Coal Problems

THE National Coal Board report for 1950 shows that output was 204.1 million tons, 1.4 million tons more than in 1949; this was offset by a rise in total home consumption (allowing for a decrease in export and bunker tonnage) of 4.6 million tons. Stocks therefore fell by three million tons; a slow start was made in increasing the yearly output to 240 million tons by 1961, as envisaged in the N.C.B. fifteen-year plan published last November; and the necessary imports of coal from U.S.A. bear heavily on the national economy. Falling manpower, despite an increase in output per man, and increasing consumption are likely to be serious problems for some time, even although a crisis such as last winter's may not re-occur. The effects of all this on the railways are bad in various ways, such as

the passenger train cuts earlier this year and the present difficulties in South Wales due to the import of coal through ports built for export and to the re-orientation generally of coal despatches. The railways moreover have had difficulty at times in moving coal from pitheads, and the N.C.B. policy is to divert coal transport to the roads where practicable. The Board's financial results for 1950 are rather happier; a surplus of £8.3 million (less than for 1949) reduced the deficit to £4 million, but it does not seem that the factors causing the reduction in surplus have ceased to operate.

Railway Manpower Economy

THE "efficiency committee" of Railway Executive and trades union representatives, set up last February to devise means of effecting manpower and other economies, has lost little time in reaching agreement on certain points. The most conclusive of its findings (which are given in detail on other pages this week) is that concerning the "knocking-up" of footplate staff, which practice is at last to cease in a few weeks' time. There is also a measure of agreement on the largely redundant van guards in the London area. This question is linked with the general question of the cartage of parcels in London, which still is being examined; one factor is the now alarming amount of pilfering. As to lodging turns for train crews, restriction of which has been a main obstacle to manpower economy and to efficiency generally in operating, the committee can only report that an understanding has been reached, adding that the whole complex problem cannot be solved quickly. In the present manpower crisis in train operation it is, however, a matter for thankfulness that some sort of working agreement has been achieved.

Overseas Railway Traffics

BOTH gross earnings and working expenses of the Canadian Pacific Railway continued to advance during April and the net result for the month showed a £230,000 improvement at £877,000. Gross earnings at £11,648,000 were £1,721,000 higher, and working expenses, which amounted to £10,771,000, compared with £9,281,000 for the same four weeks in 1950. In the 17 weeks since January 1 C.P.R. aggregate gross earnings had advanced by £6,731,000 to £44,384,000 and net earnings were up by £1,801,000 at £2,902,000. During the financial year ended March 31, Gold Coast Railway traffics made a total improvement by £333,187 to £3,141,271, after a £29,182 increase to £288,386 in the month of March. Victorian Railways receipts for February were £87,111 lower at £1,739,845 as compared with the equivalent month last year. Electric street railway traffics were slightly higher at £7,458, but road motor and railway receipts fell by £189 and £87,053, to £1,484 and £1,730,903, respectively.

British Transport Commission Statistics

A PART from the general question of the volume and flow of British Railways freight traffic discussed by a correspondent in our last week's issue, the most notable feature of the statistics for Period 4, in view of present operating difficulties, is the drop in mineral traffic; total tonnage of mineral traffic for this was less than for each of the first three periods of 1951, and also less than for Period 4 of last year, though the decline was only in the North Eastern and Scottish Regions. Coal and coke tonnage was down on Period 3 (perhaps because of the incidence of Easter) but also on Period 2, though in view of the known increased colliery output the total increase of 6 per cent. (10 per cent. in the London Midland Region) over last year was to be expected. The Easter holiday precludes true comparison in passenger traffic; the aggregate of passenger journeys for the first three calendar months of 1951 is very slightly below last year's, with an inexplicable increase of 4.5 per cent. in the Scottish Region. The "efficiency statistics" showed little change.

Eastbourne Meeting of I.U.R. Committees

THE success of the International Union of Railways committee meetings held recently at Eastbourne, with British Railways as the host administration, is a matter for congratulation, and not least to the organisers. The magnitude and scope of the agenda are apparent in the account given elsewhere in this issue. It is significant that much attention was paid to methods of traffic handling such as palletisation, now the object of widespread research and discussion, to refrigerator and insulated wagons, to road-and-rail competition and co-operation in international passenger and goods traffic, and to many aspects of electric traction. The growing importance of traffic between the Continent and Great Britain is shown by the British chairmanship of the committee dealing with commercial questions of international passenger traffic, and by the discussion of conditions governing the running over British railways of wagons from the Continent by one or other of the train ferries. Conversely, the I.U.R., with its London office, plays an important part—invariably in commercial more than in technical matters—in British Railways' activities.

A Measure of Industrial Progress

THIS year the British Standards Institution attains its golden jubilee, and to mark the event an exhibition supported by 50 collaborating industries will be held at the Science Museum at South Kensington during the two weeks commencing June 18. Although the exhibition will be essentially technical in character, modern methods are being used to ensure an attractive display, with the standardisation practice of each industry presented with the maximum clarity. There will be an important railway exhibit consisting of more than 30 separate items. These will be divided into three sections, covering civil and mechanical engineering and signalling, where the application of standards will be represented by examples of equipment and photographic displays. Exhibits will demonstrate old and new signalling methods and show examples of modern permanent way and rolling stock practice.

The Case for 50-cycle Traction

THE impetus given by French engineers to the development of electric traction at 50 cycles is well known and widely admired. Two articles this week give the reasons for the special interest which this subject has for France, and one of them will be continued in a future issue with a review of the technical problems involved. The equipment of the S.N.C.F. line from Aix-les-Bains to La Roche-sur-Foron on which the 50-cycle experiments are taking place was described in our issue of February 24, 1950, followed by descriptions of the first of the prototype locomotives and of the methods of tackling the 50-cycle problem favoured by the builders of its electrical equipment in our December 29, 1950, and May 18, 1951, issues respectively. Attractive as the system undoubtedly is, it is viewed with caution in some quarters, often because of doubts as to whether the effect of the traction load on the three-phase network would cause as little trouble as is anticipated by the French engineers. The degree of disturbance presumably would depend on the ratio between the total and the traction loads, so that local conditions might cause other systems to be preferred.

A "One-Piece" Van

A LEADING American freight wagon manufacturer undertook an intensive research programme to investigate methods of producing a van in which great strength and lightness would be combined. The result is the Unicel van, described elsewhere in this issue, in which three modern engineering ideas are incorporated: laminated wood to save steel and reduce weight; a continuous moulded shape, for strength, and an improved shock-absorbing system. The prototype has been subjected to rigorous tests and proved its far greater capacity to with-

stand impact forces than the conventional steel freight wagon. Much of the 30 per cent. saving in weight is achieved by dispensing with the heavy underframe centre sill, made possible by the "moulded-unit" principle of construction, similar to that used in modern aircraft; the Unicel body supports both its load and itself. The lack of supporting pillars or cross-members, and the thin walls and greater length provide greater load capacity than in ordinary vans.

Seen Through the Driver's Eyes

ALTHOUGH the desirability of hearing the driver's point of view has been pointed out from time to time in discussions at the Institution of Railway Signal Engineers, only on rare occasions has a driver spoken there. The film shown by the new President, Mr. S. Williams, Signal & Telecommunications Engineer, London Midland Region, when delivering his inaugural address, is therefore of considerable interest. Whatever signals are provided, and however excellent the signal engineer may consider them, it is those to whom their messages apply who are primarily concerned with them, and for whom good visibility at all times and capacity for being read quickly and accurately are of paramount importance. The need to bear this constantly in mind was stressed by Mr. Williams, and to give additional emphasis to his remarks he exhibited a film showing typical signal locations of various types, as seen from the footplate of the "Royal Scot" between London and Carlisle. This gave an excellent insight into the task that falls on the drivers of such fast trains and showed how imperative it was that everything reasonably practicable should be done to facilitate it, as it had to be carried out no matter how bad the weather conditions. Mr. Williams has for long been a consistent advocate of colour-light distant signals and automatic train control.

Side-Tank Engines for the Sudan

READY to be delivered to the Sudan Railways in the near future are ten saturated 0-6-0 tank engines built by the Hunslet Engine Co. Ltd. These locomotives are required for heavy shunting work in goods yards and in station sidings. Due to bad water, and with a view to providing ample space for the removal of scale during boiler washout, the number of tubes has been restricted in this case. This has been done so that the bottoms of the tube-plates are clear of tubes, giving additional space between the bottom row of tubes and the boiler barrel. In addition 18 washout plugs have been provided, together with four mudhole doors; the boiler and firebox have been lagged with magnesia blocks. The cab roof is fitted with a ventilator, and the roof extends over the cab, 1 ft. 1½ in. on each side. Holes are provided in the front and rear weather boards instead of the usual windows. The locomotives, which are described and illustrated elsewhere in this issue, are being despatched fully erected to Port Sudan.

The Ubiquitous Halfpenny

IN recent weeks the halfpenny has become of some importance to the regular traveller. Without a supply of these coins he may find that buying his morning and evening papers takes longer than the split seconds he allots it in his tight schedules between home, office, and train, and news-vendors do their best to discourage asking for change by adding a significant "thank you" on their placards announcing the increase. From last week a halfpenny has been added to the price of a cup of tea at railway refreshment rooms and in trains, which now costs threepence halfpenny. On the same day the Postmaster-General announced his intention of adding the ubiquitous halfpenny to certain telegraph charges, and London hairdressers forecast a still steeper increase in the cost of their services. A British Railways official quoted in the press neatly side-stepped criticism of the dearer cup of tea by laying it at the door of the Hotels Executive. No strong public reaction is reported, however, and it is likely that travelling tea drinkers have resolved to afford their indulgence by sending shorter telegrams and letting their hair grow longer.

Railway Efficiency and Charges

DEFENCE of nationalised transport and of British Railways in particular is the theme of the paper "Transport Efficiency and Levels of Charges" read this week to the Institute of Transport Congress at Torquay by Sir William Wood, a Past President of the Institute and a Member of the British Transport Commission. Reviewing the railway amalgamations of 1923 and nationalisation in 1948, he reiterates his statement made in 1933, that "the nature of a railway business, with its almost universal public contacts, and the need for equality of treatment of its patrons alone made it desirable that there should be real fusion" of the undertakings concerned, as against mere unity of ownership at the top as is common and (he adds) often preferable in amalgamation of other business undertakings. As regards both 1923 and 1948, he stresses the advantages of fusion in a railway amalgamation: centralised purchasing, standardisation, and fusion of overlapping commercial organisations. He points out, however, that railway charges policy, as distinct from its application, was necessarily centralised by the four main-line companies "for the simple reason that like treatment for all . . . has been inherent in the laws governing railway charges for over 100 years." Each of the four companies secured great economies between 1923 and the outbreak of war in 1939, and could undertake large-scale developments as a result of the fusion of its component railway systems.

In 1939 the railways of Britain "had reached the highest degree of efficiency in their long history." In support of this view Sir William Wood refers to the annual reviews of the Railway Rates Tribunal covering the years 1923-39; at each review the onus lay with the railway companies to show that they had conducted their affairs efficiently, "and at each review that was proved"; but the efficiency of 1939 cannot be restored until arrears of maintenance and capital developments accruing since the outbreak of war have been made up. There is some analogy between the situation now and in the years following amalgamation. During the latter, however, the very extensive re-equipment of their facilities by the main-line companies not only enabled them to deal successfully with wartime traffic, but also turn over much of their workshop capacity to armament. The disadvantages of amalgamation now as 25 years ago are the risk of losing local commercial contacts, and "circumlocution," both inherent in a large organisation which "sells a service and not a physical commodity." Regarding fusion of commercial services, Sir William Wood looks forward to a common commercial service for B.T.C. activities, particularly for British Railways and British Road Services; a start already has been made in East Anglia, where a joint organisation was set up some months ago.

Much of the paper is devoted to dealing with criticisms of the railways, which sometimes refer to specific activities and the way economies can be achieved (provided the restriction on capital permits) or to the rise in the costs of rail transport as due to wasteful management. As to the latter, Sir William Wood quotes the relevant figures: increases over the 1938 level of 135 per cent. in wages and material prices, against 100 per cent. in railway charges after the freight rate increases last April. After dealing in detail with some adverse criticisms based on faulty statistical data, he discusses criticism of British Railways passenger services. He quotes figures, showing efficiency in train and station working, of the average miles per train-hour of all steam passenger trains: 12.79 in 1920 (the first year for which the figure is available); 14.47 in 1938; and 14.12 in 1950. He admits that "selected trains" may be slower now than 40 or 50 years ago; and the relatively high figure for 1950 may be due in part to suspension of some branch and main-line stopping trains, though more efficient operating generally certainly contributed. In answer to allegations that passenger traffic is deserting the railways he gives figures of increases since 1938 in passenger-miles (as opposed to passenger-journeys) and in the number of passengers per train (both of which are partly due to some loss of short-distance traffic to the roads, though train-miles decreased). He also draws attention to the growth of mails and parcels traffic, which has its

effect on passenger train running by increasing certain station times, and also by justifying retention of some services which convey few passengers.

A statement that the railways were losing money for a generation before the war is rebutted: in the eleven years before the war the net revenue of the four main-line railways averaged £35.4 million (the amount payable yearly to the former shareholders by the B.T.C. is £27.8 million) and during that period no less than £185 million was spent on major renewals and £75 million on additional capital improvements. Dealing with economies effected since nationalisation, he gives a timely reminder that "those readily measured by monetary figures" amount to some £12.5 million a year, besides those derived from the abolition of privately-owned coal wagons, and so on. Against this, there are rising prices and the time-lag between such rises and Governmental authority for the Commission to raise its charges, which have been much discussed in recent months. The question of closing redundant branch lines and the familiar allegations of excessive stall on the railways are quickly disposed of, the former by giving the facts regarding the work done by the Railway Executive, and the latter by quoting comparative figures of pre-war—though, in the light of post-war wage increases, it is perhaps surprising that whereas wages are now some 60 per cent. of British Railways costs, the proportion for the L.M.S.R. between the wars averaged 65-69 per cent.

The situation as regards railway efficiency and charges is summarised by Sir William Wood in a reply to criticisms of high charges. It cannot, he maintains, be claimed that the railways were not efficient before the war, as the reverse was proved to the Rates Tribunal. The successors of the railway companies have much the same methods, and the level of their charges over pre-war is less than the rise in expenditure.

Parliament and Nationalised Transport

THAT the present degree of control which Parliament can exercise over nationalised transport is insufficient is the opinion of Mr. David Renton, National-Liberal and Conservative M.P. for Huntingdonshire, expressed in his paper yesterday to the Institute of Transport Congress. There are three principal ways of exerting such control: questions in the House of Commons, discussion in debates, and voting in the division lobbies. Mr. Renton does not consider the Transport Consultative Committees as elements in Parliamentary control, as they are appointed by the Minister, and not democratically elected. The writing of letters by individual M.P.s. to the Chairman of the British Transport Commission, as a substitute for questions in the House, he considers less efficacious, partly because such correspondence "lacks the vital spur of publicity."

The great defect in the Parliamentary question as a means of controlling nationalised transport, Mr. Renton considers, is the anomaly that the Post Office and the earlier utilities (coal, electricity, and so on) to be nationalised are the legitimate subject of questions to the Minister responsible, even on matters of the greatest detail. In the case of the undertakings nationalised under the Act of 1947, Members have had difficulty both in getting their questions accepted at the Table of the House of Commons and, when the question once is accepted, in eliciting from the Minister any reply other than an indication that the matter is one for the B.T.C.—despite one or two gambits which are no longer effective. Questions in the House of Commons on transport topics are generally confined to occasional matters of general importance and to those affecting the business of the House, such as the date of issue of the B.T.C. annual report.

A fair opportunity is given, in Mr. Renton's opinion, for debates, but more is needed, especially if nationalisation is to be carried still further in pursuance of the Act. The chief debates since nationalisation have been on the B.T.C. annual reports for 1948 and 1949, on two prayers to annul the regulations of the Minister of Transport to increase freight charges, and on the Transport (Amendment) Bill, the last a private Bill. Mr. Renton emphasises that the

time allotted to debating the Commission's reports (the best annual opportunity for the Commons to review nationalised transport) does not give an opportunity for Government spokesmen to deal with the many queries raised and to furnish all the information required by the House. He then goes on to describe briefly how the Opposition has voted in the various divisions on transport matters since nationalisation, and points out that in questions of nationalised transport the Lords have not been active.

For this lack of Parliamentary control over nationalised undertakings Mr. Renton suggests as a remedy greater Ministerial responsibility in the matter of questions, with the necessity for a Select Committee to examine their reports and accounts. He bases his demand for closer control largely on the view that "the fear of financial loss does not have the effect it once had"—for which allegation there is surely no evidence, as is apparent from the statements by officers of the B.T.C. and its Executives so often recorded in these pages. Whether the prospect of appearing before such a Committee would make Members of the B.T.C. and their principal officers "nervous," as Mr. Herbert Morrison has suggested, is doubtful, but it would certainly take them away from the duties in which they are already fully engaged.

Electric Traction Trends in France

FEW electrification events of recent years have aroused more widespread interest than the post-war activities of the French National Railways. Both the motive power developments for the Paris-Lyons scheme and the whole conception of the present experiments with 50-cycle traction promise to have a widespread influence on electrified railways elsewhere. The Railway Students' Association (London School of Economics & Political Science) was fortunate therefore, in hearing during its recent Paris Convention (reported in our June 1 issue) a paper on "Electric Traction as Applied to S.N.C.F. Main-Line Passenger and Freight Train Operation" by M. Marcel Garreau, Head of the Electric Traction Division S.N.C.F. In a preliminary review of development, M. Garreau said that the decision of 1920 to adopt d.c. at 1,500 V. was dictated not only by problems associated with single-phase traction motors, but also by the policy of letting railway electrification expand in step with the growth of the 50-cycle national distribution network, rather than limiting it to particular areas where power could be generated at low frequency.

At the present time 2,380 miles of main line are electrified at 1,500 V. d.c. and 125 miles of suburban routes and mountain railways at 600 to 800 V. d.c., representing 10 per cent. of the whole S.N.C.F. system. This mileage proportion is not the significant figure, however, but the fact that electrified lines carry 24 per cent. of the total traffic. M. Garreau showed that every effort is made to divert additional traffic to electrified lines so as to obtain the maximum return on the investment, quoting the intention to handle ordinary and express freight, now passing *via* Nevers, on the Paris-Lyons main line when its conversion is completed, and eventually to transfer all freight traffic now running on the right bank of the River Rhone to the left bank when electrification is extended from Lyons to Marseilles.

Electric locomotive design is governed by the heavy loads to be hauled, about 1,200 tons being normal for freight trains and 800 to 850 tons for passenger trains. A large stock of Bo-Bo locomotives, some 600 in round figures, is at work, and this type is the one generally adopted for freight and secondary passenger duties. The class now standardised has articulated bogies carrying the buffing and drawgear, and in its electrical characteristics shows the results of continuous and original development work aimed at increasing the speed range over which full output is available. These machines qualify fully for the designation "mixed traffic" in that they can develop their maximum power when running at 60 m.p.h. as well as at 30 m.p.h. M. Garreau compared this with the limitation of full output in the largest previous class of Bo-Bo loco-

motives to the range of speeds between 30 and 40 m.p.h., and referred briefly to the use of compensating windings in the motors to permit the high degree of field-weakening from which the improved characteristics are derived.

In spite of the excellent performance of the 2-D-2 express locomotives, future policy is to build only power-bogie types in which the whole weight is used for adhesion. No more of the 2-D-2 series will be built, but 43 new Co-Co machines similar to the prototype high-speed locomotive with that wheel arrangement are under construction. Their continuous rating of 4,000 h.p. is lower than that of the latest 2-D-2 class, but is considered adequate for all the needs of the S.N.C.F. Development of high-speed designs with the Bo-Bo wheel arrangement is proceeding with the object of providing the necessary operating characteristics within a weight of 80 tons (the prototype high-speed Co-Co weighs 104 tons).

An interesting comment on electric locomotive design was contained in M. Garreau's concluding remarks on the present experiments with 50-cycle traction in France. The construction of new prototypes for 1,500 V. d.c. might seem at variance with the administration's faith in the 50-cycle system, but mechanical problems predominate in the evolution of high-speed Bo-Bo locomotives, and at present it is only on direct current lines that the mechanical design can be put to practical test. In years to come the experience so gained will be available if required for building single-phase machines with a similar performance.

Mail by Rail

UNDER the title "Mail by Rail" Mr. B. A. Long and Professor W. J. Dennis have written a book on the U.S.A. Postal Transportation Service. The authors were railway mail clerks at one time. Mr. Long is now Associate Editor of *Transit Postmark*, and his collaborator is Professor of Spanish and Latin-American History at Parsons College, Iowa. Primarily their book is concerned with the staff who sort the mail in the travelling post offices. These men, to the number of 28,000, are now members of the National Postal Transport Association, which has offices in Washington and publishes its own magazine, *The Postal Transport Journal*.

The oldest railway post office in the United States has been run between Chicago and Omaha by the Chicago North Western Railway for 86 years. The longest run of the "R.P.O." is 1,169 miles over the Great Northern from Williston, North Dakota, to Seattle. The largest "R.P.O." train is worked by the New York Central between Chicago and Cleveland with 25 sorting clerks on board. Altogether, some 3,000 "R.P.O." cars are operated on 800 routes, covering 205,000,000 miles a year. Among a number of interesting illustrations is one showing clerks working in a car travelling at 60 m.p.h. Even better, however, is a reproduction of a scale drawing showing the interior of the "Twentieth Century Limited" railway post office between New York and Chicago.

One of the best chapters deals with British travelling post offices. These differ in many ways from American postal cars. We are told that only on our "T.P.O." lines are provided (1) facilities for sorting all types and sizes of mail in separate cases; (2) automatic apparatus which simultaneously catches and dispatches up to 1,200 lb. of mail at full speed; and (3) the ultimate in safe and comfortably furnished mail cars.

There is a crisply written account of a trip on the "Down/Up Special" of the Midland and Scottish Regions of British Railways between Euston and Aberdeen. Another pleasing reference is to the Great Western "Ghost Train", with 40 sorters working "some 1,000 letter bags on a 325 mile journey", from Paddington to Penzance. Mr. Long winds up with the compliment that, since Britain's and the world's first "T.P.O." was inaugurated on January 6, 1838, its railway mail services have given 112 years of magnificent service to the public.

* "Mail by Rail." By Bryant A. Long and William J. Dennis. Published by the Simmons-Boardman Publishing Co. Ltd., 30, Church Street, New York. Price \$4.95.

The Scope of British Railways

(By a Correspondent)

STATEMENTS have been published freely of late to the effect that British Railways perform more work than the former private companies did before the war. The proof offered for this proposition is a comparison of 1950 statistics with 1938, which was a poor year for trade generally, and a particularly bad one for the railways. In contrast, 1937 was the last reasonably good year the companies had before they came under Government control. Its operating results therefore give a fair measure of the capabilities of the railways under private enterprise and will stand comparison with the performance of British Railways in 1950.

Table 1 sets out nine significant statistics for the two years and indicates a decrease in 1950 under every head except one.

TABLE 1

Item	Decrease 1950 from 1937	Decrease per cent.
1. Passenger journeys originating	313,700,000	24
2. Coaching train-miles	40,700,000	14
3. Coaching shunting-miles	2,084,000	12
4. Coaching engine-hours	3,207,000	13
5. Freight tonnage originating	16,033,000	5
6. Wagon-miles	273,043,000	5
7. Freight train-miles	Inc. 707,000	Inc. 0.5
8. Freight shunting-miles	12,067,000	11
9. Freight engine-hours	1,202,000	3

The first four items show conclusively that British Railways have done less passenger transport, and at present there is no sign of a recovery in this branch of business. In January and February another 1,288,000 passengers disappeared, with a loss in receipts of £611,000.

There is no sign either of extra freight traffic developing. In 1950 British Railways carried 2½ million tons more merchandise, and 1½ million tons more minerals, but 21 million tons less coal than were hauled in 1937. The position is far from being static. In particular the forwardings of merchandise have declined each year since nationalisation at an accelerating rate. The 1950 tonnage was 949,000 tons below 1949, a decrease of 1.8 per cent. This brought the decrease since 1947 to 2,500,000 tons (4.5 per cent.). In the first 12 weeks of 1951 there was a further loss of 465,000 tons (3.6 per cent.). Unless this trend changes, the most valuable tonnage handled by British Railways will be down to the 1937 level before long.

The originating tonnage of minerals was lower in 1950 by 160,000 tons (0.3 per cent.) and again in the 12 weeks of 1951 by 236,000 tons (1.7 per cent.). A large share of these heavy traffics passes to iron and steel works, where Government spokesmen say production will be less this year. It therefore seems probable that mineral forwardings have passed their peak. To some extent coal saved the situation last year with an increase of 2,713,000 tons (1.7 per cent.). A setback occurred in the first 12 weeks of 1951 when the tonnage of coal put on rail went down by 343,000 tons (0.9 per cent.). Judging by traffic receipts, the next period to April 22 was better, but there is no certainty of a steady growth in output from the coal mining industry.

When we turn to net ton-miles and statistics derived from them, we find substantial increases in 1950 over 1937, as shown in Table 2.

TABLE 2

	Increase 1950 over 1937	Increase per cent.
Net ton-miles	3,737,000,000	20
Length of haul (miles)	16	24
Train load (tons)	27	20
Net ton-miles per train engine-hour	127	13

From the two sets of statistics, only one important item of fresh work falling on British Railways emerges—the haulage of the average ton of freight traffic for 16 miles further than it travelled in 1937. That does not sound a prodigious task in prevailing conditions. Apart from attenuated passenger services leaving room for freight trains, the operating advantages flowing from unification,

which were enumerated in the British Transport Commission reports for 1948 and 1949, cannot have failed to ease the way for long-distance traffic. So will many additional facilities provided during the last 12 years—some of them for the express purpose of working coal trains over unusual routes. The transport of coal has been simplified materially since the National Coal Board began to regulate distribution. Above all, private owners' wagons have gone, with a great saving of empty wagon-mileage and shunting, as shown by items 6 and 8 in Table 1.

Notwithstanding all these aids to freight train operation, the Railway Executive is worried, on its own admission, about the haulage of 3,330,000 tons of coal a week this year. Right through 1937, the former companies hauled an average tonnage of 3,624,000 a week, and made little to-do about it, for the simple reason that, in prosperous years for the coal mining industry, they had carried larger quantities without a great deal of difficulty. One of the main assets of a railway system is the possession of a large reserve capacity which can be called into play to meet exceptional demands for transport.

It is fortunate for British Railways finances that the tonnage of coal declared nowadays goes far afield. During the first 12 weeks of 1951, as already noted, less coal was raised; the ton-mileage, however, rose 4.5 per cent., with the result that coal accounted for 26½ per cent. of the total railway receipts to March 25. Coal set our railways going, and since the middle of the nineteenth century has been the life-blood of "the heavy lines." The nearer the National Coal Board can raise its output to the 1937 level of 241 million tons, the brighter will be the chance of avoiding railway deficits.

We conclude from this analysis of traffic and trends in two years of good trade that the scope of British Railways is growing narrower than the field of action open to the former companies. In 1935 to 1938 there was a burst of enterprise which livened up railway working and gave the country the best services it had enjoyed since amalgamation. One sees no prospect of a similar awakening in the near future. There is too little commerce in ideas between the British Transport Commission and the Railway Executive; neither has the Executive hit on satisfactory relations with the Regions, where the traffic is handled and the users of the railways are known. We live in a transport era that is changing rapidly. New lines of thought are needed to deal with present-day problems and will not be forthcoming until the existing organisation is remodelled somewhat extensively.

Railway Electrification at Normal Industrial Tension

By M. Renouard, *Inspecteur Générale, S.N.C.F.*

ELECTRIFICATION schemes undertaken by the French and other railways between the two wars have proved the superiority of electric traction over steam traction as far as operation and production are concerned. They have also shown that, from the point of view of general economy, the railways are by far the best consumers of electricity. It follows that all countries with electrical production resources would benefit by electrifying their lines where the source of electric generation is thermal or hydro-electric. Contrary to general opinion, this is true of countries rich in iron ore, or with a well-developed steel industry, because they are able to burn poor quality coal of little commercial value in modern thermal power stations, and make use of the combustion gases generated in blast furnaces. This explains why such countries as Holland, Belgium, and Germany have made important strides in the development of their railways.

Furthermore, if the fact that oil must be imported into Europe is borne in mind, and that the structure of railway networks and density of railway traffic is such that electric traction is more advantageous than diesel traction, it can be understood that an inevitable reconversion to electricity must take place in all European countries where water power, coal, and steel exist.

Assuming these conclusions to be agreed, railway engineers must naturally seek a means of electrification which will prove the most economical, that is, requiring the minimum capital expenditure. This means using industrial current at 50 cycles, which permits electrical energy to be supplied directly from the mains, and used at high tension to reduce to a minimum the size of fixed installations.

Originally, no country was able to develop such a system because of the impossibility of designing suitably powerful traction motors which could operate on alternating current at high frequency. A variety of schemes, all of which entailed somewhat unwieldy electrical installations due to the necessity for transforming industrial current to a current suited to traction, was therefore adopted; in France, the Chief Electricity Advisory Committee decided in 1920 in favour of 1,500 volts d.c.

For this reason the French National Railways recommended, in 1943, the possibility of using industrial current at 20,000 volts, and, immediately after the occupation of Germany by the Allies, decided to pursue, with the assistance of German engineers, the experiments carried out previously by the Reichsbahn, and later abandoned, on the Höllental line in Baden.

Publication of the first results obtained and of the firm attitude expressed by the S.N.C.F. that it intended to continue its experiments until this problem had been solved, provoked considerable interest amongst French, German and American builders who, making use of the latest technical developments, finally succeeded in designing types of traction motors which could operate at high tension with alternating current.

It is now certain, moreover, that any European railway, wishing to develop electric traction on a basis of industrial current, will have a wide choice of types of light and heavy locomotives and railcars. Through working between lines already electrified and those supplied with industrial current can easily be achieved. The new machines can use both alternating current at 50 cycles and any other supply of current, thanks to the availability of suitable converters which can transform any supply of current to that required by the traction motors.

There are already several locomotives and electric railcars in service giving excellent results on the Höllental line and on the line between Aix-les-Bains and La Roche-sur-Foron recently equipped by the S.N.C.F. The production costs of these traction units are quite comparable with the costs of those at present operating at 1,500 volts.

An economy of approximately 50 per cent. on fixed installations can be obtained over installations operating on the 1,500-volt system. As the current can be carried at high voltage, the distribution points on the track can be separated by as much as 100 km. (instead of 15 to 20 km.), and they can therefore be situated at the most suitable points on the general high tension network. Thus it is possible to eliminate a feed line for a particular current suited to the railways only, and also eliminate many substations. Also, the small amperage allows the catenary sections to be reduced from 500 or 600 sq. mm. to 150 to 200 sq. mm., and appreciable economy can be achieved both from the reduction in the quantity of copper needed and the reduced size of the overhead line supports. Maintenance and supervisory expenses are reduced by approximately 20 per cent. on similar expenses required for the maintenance of 1,500-volt installations.

The small weight of equipment operating on industrial current simplifies modifications to stations or tracks. This advantage is far from negligible, because it is possible to avoid carrying out the numerous modifications which normally precede heavy electrification and have to be made to avoid the inevitable heavy expenses caused by subsequent replacement of electrical installations.

It has been proved that, due to the progress achieved on fixed installations, the equipment of an important network is no longer liable to cause considerable phase fluctuations on a high voltage network provided with modern systems of conversion (Scott connected apparatus). Fluctuations can, in fact, be brought within acceptable limits.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Mr. John Elliot on American Railways

June 5

SIR,—With reference to the editorial note in your June 1 issue, concerning my remark to a reporter at Southampton that the American railways are now "the finest in the world"; as you suggest, what I said was not such a sweeping judgment but referred in the first place to the fact that in America there was no limitation on capital expenditure, no shortage of materials, and no manpower problem.

In these circumstances they have seized their opportunities with both hands and are probably now the finest all-round railways in the world, which indeed, as they agreed with me, they ought to be.

When comparing our railways with theirs one has to remember the background of limited supplies, together with the overriding demands of the export drive, and now the rearmament programme. Nevertheless, we must not withhold from the American railway officers, managements and their staffs credit for the progress that has undoubtedly been made in the face of fierce road and air competition.

Yours faithfully,

JOHN ELLIOT
Chairman

The Railway Executive,
222, Marylebone Road, London, N.W.1

Railway Efficiency

June 5

SIR,—Your correspondence columns on the issue of railway efficiency are topical and interesting, but your latest contributor, Mr. J. F. Burrell, in your June 1 issue, seems rather soured in his outlook, for his comments seem to be indicative of one who has seen some faults but has given no time to study the reasons.

No one disputes that, in all industries, there is a desire for some general examination to secure a type of discipline which would be accepted as a bond of honour rather than a forced discipline operated only by threat of punishment; but, because railway staffs have, in the great majority of grades, to work shift and weekend turns, the right type of man has no inducement to take up railway transport as a career and become interested in his job, for better-paid and more congenial employment with none of these difficulties is always available to the young man of today.

Many of those who do enter railway work soon become indifferent and generally object to any discipline, largely because they deplore their inability to join in sport and social activities with their friends and associates; and, when they relate their wages to their abnormal hours of duty, they soon tire of what they regard as a hindrance to a normal life, with the result that there are again more staff vacancies. As a natural consequence, and to keep the job moving, the management is forced to employ those who normally would not come up to railway standards. How, therefore, does your correspondent expect the staff to have all the virtues—the lack of which he criticises—when these features are known to everyone connected with the industry?

Every critic has a solution, or so it would appear, and assumes that the people who have the responsibility of being associated with the management and staff sides of the industry just ignore unpalatable facts to inconvenience the public. Nothing of the sort really occurs, and the only solution which can have any real and lasting effect is for a national policy to be adopted whereby those in any industry who have to work in congenial hours, weekends and bank holidays, shall always have a guaranteed percentage of wages and salaries over and above that received by people who never know what it is to have altered meal and rest hours.

If this principle is unacceptable to the community, then no section of transport can ever expect to recruit and retain the right type of staff who will accept normal standards

of discipline and be really interested in their work. But for the present middle-aged staff who have been on the railway for many years and a proportion of the younger men, the operation of rail transport would be more serious than it actually is, and the nation should be grateful that these men have remained in their posts notwithstanding the opportunities which are available to them in outside industries.

Yours faithfully,
H. W. FRANKLIN
President

National Union of Railwaymen,
Euston Road, London, N.W.1

Rail and Road Costs

April 10

SIR,—From time to time in your columns the relative merits of road and rail transport are discussed with reference to a fair apportionment of the costs of each. Whatever view the writer holds, he appears unable to support his theory with figures. Even so eminent an authority as Dr. Gilbert Walker, writing in your issue of December 1, 1950, can only say that the cost of adaptation of roads for modern traffic would probably not be more than the entire annual expenditure on the classified ('A' and 'B') roads.

Figures for the railways are easily accessible. Are we to assume that those for the roads are not? What is the annual expenditure on the maintenance of British roads? What has been the expenditure on new roads in the last 35 years on the capital outlay for which road users might legitimately be asked to pay, say, 2½ per cent. interest? What has been the cost of traffic lights and other highway amenities?

If the "adaptation" view is accepted, what was the cost of road maintenance 35 years ago, and what would be the figure for comparable work today? How much towards these costs is paid by road transport in taxes? I submit that without figures of this kind the road-rail problem cannot be solved.

It is perhaps significant that while many think the railways pay too heavy a burden there are none who contend that in comparison with other forms of transport it is too light. It can therefore be assumed that the burden will not be increased and that the railways should therefore go forward with plans for making their lesser branch and cross-country lines pay.

The illustration appearing in your January 26 issue of a new railcar for the S.N.C.F. suggests one answer to the problem of finding a light unit cheap to operate. These vehicles would always have a field of usefulness, and the purchase cost would not be lost if a country line failed to respond when one was put in service. If these S.N.C.F. cars will pass the British loading gauge, could a trial be made of some in this country?

Another point about branch line economics is that of speed and frequency of service. Too often when there might be local traffic there is only a train if there is a main-line connection. As an example, Windsor Central and Slough stations are both well placed, yet the push-and-pull unit only makes irregular runs to connect at Slough. More frequent runs could be made without interference with the main line at Slough, and local traffic should be attracted because of the speedier journey. The same is true of the West-Drayton-Staines branch. Further economies could be made here by closing Staines (Western Region) station and the diversion of the trains to Staines Central (Southern Region), where a short bay could easily be laid in behind the up platform.

Yours faithfully,
R. G. R. CALVERT

c/o Westminster Bank Limited,
Broadway, Bexleyheath, Kent

THE SCRAP HEAP

A Station Harmonium

Is there a station in England which provides a harmonium in the waiting room for the amusement of passengers, other than Troutbeck in the Lake District? Yet British Railways are considering closing it as unremunerative.—*Letter to "The Times."*

Ghost Station

People living in converted buildings at Rosherville Station, Northfleet, "a ghost station" at which trains no longer stop, heard strange noises in the night. Next morning they found zinc sheeting missing from the roof. Later a man was remanded for sentence at West Kent Quarter Sessions.—*From the "Evening Standard."*

Transfer Traffic

A correspondent writes: "All I wanted were one copy of each of L.M.S.R. and M.S.J.A.R. coat-of-arms transfers as advertised. This is what I got in addition:

May 25: A receipt for 16s. from Treasurer's Department, Euston.

May 25: Two notes to say 'my tender had been accepted.'

These came from the same person in different envelopes because one transfer lay at Wolverton, the other at Harwich. They told me my forwarding instructions should be sent to the respective works.

May 29: Transfer from Wolverton arrives.

May 29: Advice note from Wolverton telling me monied invoice will follow.

May 29: Monied invoice telling me I have already paid the 5s. 6d.

May 31: Transfer from Harwich arrives with advice note enclosed this time [economical] sic.

May 31: Monied invoice also arrives under separate cover notifying me that I have paid the 10s. 6d.

The latter seem to confirm the original receipt from the Treasurer's Department. And all I wanted were two transfers!"

British Railways Poster Success

We referred in our March 23 issue to the revival of the pre-war practice of using bathing belle posters to publicise seaside holiday resorts and in the same issue gave an illustration in the Scrap Heap page of a Blackpool poster produced by the London Midland Region of British Railways. Some at least of the criticism which this type of poster at one time evoked would appear to have been misplaced in view of the fact that the poster in question was adjudged one of the two best resort posters of the year when the Association of Health & Pleasure Resorts recently held its annual conference at Southport.

A Lost Station

A correspondent informs us that the whereabouts of a former railway station on the former Birmingham & Gloucester Railway is engaging the attention of the archivist of Worcestershire. It is the station which was known as Stoke Works, and was used for passenger traffic certainly until 1855, when it still appeared in the timetable. But a new junction, built by the Oxford, Worcester & Wolverhampton Railway, caused it to be closed. More than 3,000 maps and records have been examined, but although the site is shown on an 1844 Midland railway map, the building or its foundations have not yet been found. It is thought that evidence may be found among the buildings of the present Stoke goods depot.

Bargain Travel

May I offer my own explanations as to why passenger rail traffic is still declining?

The high cost of season tickets enhanced by the five-day week has driven much residential traffic to the buses.

A lack of correlating train service and fares in advertising local cheap facilities. Lack of knowledge and interest by some local staff in facilities offered makes the position worse.

The tendency for the timetable to collapse lamentably at holiday periods. Casual travellers who use the train only at such times thus encounter the very worst in railway service.

Bad timekeeping by local trains in the midday period. This affects particularly services in the Manchester area.

Finally, prejudice due to memories of the "Is your journey really necessary?" era, and to political campaigning against nationalisation.—*From a letter to "The Manchester Guardian."*

"In the Blood"

A 14-year-old Harlesden boy saw a railway engine standing unattended at Willesden Junction. He stepped into the cab, checked the pressure gauges, turned the right wheels, pulled the right levers, and drove the engine 35 yards. Then he brought the engine back to where he had found it. He set the brakes and stepped off the footplate into the arms of a railway policeman.

Then he handled summonses for trespassing on the railway and "unlawfully setting in motion a vehicle, to wit, locomotive engine No. 2983." And he felt sorry about his escapade. He explained: "I was on the railway line by myself and the temptation was too much."

His mother said: "Maybe it is something in the blood. His father was on the railways; so was his grandfather."—*From the "Daily Mail."*

June Memories

There was a time, when summer's social round
Made dear old Waterloo enchanted ground,
When Ascot exercised its magic sway—
Gold Cup, Hunt Cup, and charming Ladies' Day.

Grey-topped squires, of every type and age,
Escorted extracts from the fashion page,
Who passed mere humans nonchalantly by,
But seldom missed the photographic eye.

They made their entrance, posed awhile, and then,
(Of course, the *hoi polloi* had left by ten)
Set off to brave the darts from envious eyes,
Armed with their passports into Paradise.*

Little of all that glory now remains;
"A frequent service of electric trains"
Replaces all the "specials" we once knew;
The radiant hosts have dwindled to a few.

Shed just one tear—the brave old days are o'er,
Yet one may look in vain above the door
For signs of "Ichabod"—nor is it true
That glamour had deserted Waterloo.

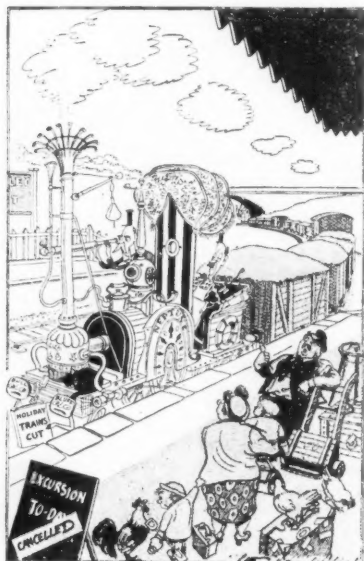
The spectacles that lasted one brief hour,
Too often ruined by a sudden shower,
Are half-forgotten in the ebb and flow
That swirls unceasing round the South Bank Show.

Pomp leaves the stage, and circumstance gives place
To festive fanfares in this year of grace
And Waterloo's gay trappings proudly state

That she, at least, is keeping up to date
A. B.

* The Royal Enclosure

LONDON LAUGHS (No. 5,066) By LEE



"Railway Executive orders. Every available train and locomotive switched to freight this summer. This lot's from the Battersea depot!"

[From "The Evening News"]

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Financial Results

The operation of the railways, harbours, steamship, air, and aerodrome services for the eleven months ended February 28, 1951, has resulted in a net surplus of £7,708,321, compared with a deficit of £2,645,443 for the corresponding period last year.

During February, 1951, expenditure exceeded estimates, largely because of increased maintenance costs, but despite this, the results of operating for the month showed a surplus of £416,403; the surplus for railways was £375,505, and harbours and aerodromes both showed surpluses of £281,704 and £207.

Steamships and air services resulted in a combined deficit of £128,933, and the net revenue appropriation for the month amounted to £112,090. The total revenue for all services during February amounted to £8,869,836, as against a total expenditure of £8,341,353.

Traffic Features

During 1950, the total tonnage of goods traffic moved amounted to 60,702,488 tons, as compared with 58,537,758 tons during 1949, an increase of 2,164,730 tons. Agricultural products and cement advanced by 665,564 and 293,557 tons respectively.

Coal hauled by rail from the collieries to Durban and Lourenço Marques during February last amounted to 201,116 tons, of which 168,760 tons were for export and 32,356 tons for bunkers.

New Rolling Stock

During the first quarter of this year, 648 goods vehicles, 46 main-line passenger coaches and ten suburban coaches were placed in service. Of these, 264 wagons and 20 passenger coaches were built in the railways' own workshops. Six locomotives, one passenger coach and 198 wagons were withdrawn from service.

CANADA

Ontario Northland Dieselisation

The Ontario Northland Railway is to build at North Bay, Ontario, a diesel shop, believed to be the first to be built in Canada as a self-contained unit specifically for diesel power. It is expected that the railway will be entirely diesel-operated by 1955. Some 40 steam locomotives are still in service.

The latest diesels to go into service are six General Motors 1,500 h.p. "A" units; there should be a total of 22 diesel locomotives in operation by the end of this year.

New Station at Farnham, Quebec

On March 8 the Canadian Pacific Railway opened a new station at Farnham, Quebec. It is a brick and rein-

forced structure, replacing the station destroyed by fire two years ago, and cost \$160,000.

The ground floor has a spacious waiting room with leather upholstered chairs, luggage room, ticket booth, washrooms, and telegraph office. On the second floor are the administrative offices of the Farnham Division, controlling train operations between Montreal and Megantic, Que., on the line to St. John, N.B., and between Montreal and Wells River, Vermont.

Sleeping Car Rates

The railways applied on April 26 for increases in sleeping-car and parlour-car fares to accompany a freight-rate increase sought earlier in the week. The higher rates would apply on short runs. The minimum for standard (first class) lower berth would rise from \$2.50 to \$3. An upper class would rise from \$2 to \$2.40. There would be corresponding increases for roomettes, bedrooms and other higher-priced types of accommodation. The minimum parlour-car rate would rise from 50 cents to \$1.

BRAZIL

Rio de Janeiro Underground

Preliminary work for the building of the proposed underground railway in Rio de Janeiro, to be carried out by the Société Générale de Traction et d'Exploitation (the former Compagnie du Chemin de Fer Métropolitain de Paris), is to be put in hand shortly. The presidential decree to this effect, authorising the company to establish a branch office in Rio, was published in May. The project was foreshadowed in our June 10, 1950, issue, in which underground schemes abroad of the former Paris Metropolitan company were listed.

SWITZERLAND

Territet Level Crossing Elimination

Between Vevey and Villeneuve, on the shores of the Lake of Geneva, an important highway traverses a chain of townships, including Vevey, La Tour de Peilz, Clarens, Montreux, and Territet. The narrow and winding road also has a tram route with frequent services, using a single track with numerous crossing points. At the western end of Territet Station, road and tramway have a level crossing with the double-track electrified Simplon line. The gates are down an average of six hours out of twenty-four, and the level crossing is notorious for its traffic hold-ups. At the same time, complicated electric installations are necessary to provide for the crossing of the tram track and the main line tracks.

Plans to remove this crossing have long been mooted, but were rejected on technical and financial grounds. There is now a major scheme to build a new

road six miles long to by-pass the built-up areas entirely. As a first step a short section of the road is being built at Territet, and linked with the existing road by a new bridge under the railway replacing the crossing.

It will require nearly one mile of road-way 29½ ft. wide and a skew bridge of 164 ft. maximum width underneath the railway, consisting of a solid reinforced concrete slab with central support, as well as the construction of numerous reinforced concrete retaining walls, faced with quarry stone.

The total cost is estimated at fr. 2,250,000 and the work will extend over two years.

ITALY

Electrification in Sicily

The conversion of the 30-mile Messina-Barcellona-Castoreale section of the Messina-Palermo main line is nearing completion. It is expected that electric traction will be introduced by the end of June. The section will be the first electrified line of the State Railways in Sicily. The electrification is being continued towards Palermo as part of the programme outlined in our August 15, 1947, issue.

WESTERN GERMANY

New Station at Bochum

One of the numerous stations destroyed during the war was at Bochum, a town with a population of 300,000. The heavy destruction of the central area enabled drastic replanning schemes, involving the removal of the main line station by about a third-of-a-mile, to be drawn up. Economic considerations, however, made it necessary to build a semi-permanent station building on the old site.

In view of the proposed ultimate removal of the station, the new building had to be so designed that it can later be used for other railway purposes. On the other hand, it was necessary to contemplate a long period of time during which the premises may have to serve as the main station of a large town. It was found that it was cheaper to demolish the ruins of the old buildings and build afresh than attempt a reconstruction. The only building elements incorporated in the new building are some foundation walls.

The new building has a single storey only. No attempt has been made to create a decorative façade. The only decorative feature is the tufastone flanking of the main entrance. The main hall measures 46 ft. × 46 ft. and has clerestory skylighting. One side of the hall, opposite the subway entrance, is occupied by the five booking office windows. One of the two waiting rooms has been combined with a buffet, the other with a station restaurant.

Electric Traction and Signalling

*Some complementary factors
in the working of busy lines*

TRACTION and signalling are the two directions in which electricity has had the most profound effect on railway working. The two subjects are to some extent interdependent in that without electric signalling methods it would be impossible to operate the intensive and rapid services that are possible with electric trains. It was appropriate, therefore, that electric traction and signalling should be treated together in a paper presented to the recent Joint Engineering Conference in London by Messrs. C. M. Cock, H. H. Dyer, and R. Dell, the scope of which was outlined briefly last week.

The electric traction section of the paper, by Mr. C. M. Cock, opened by describing the conditions in earlier years which led to different electrification systems developing simultaneously. When main-line conversions over long distances were undertaken on the Continent for the first time, a voltage of 600 was thought too low, and a three-phase a.c. system was adopted for early schemes, mainly in Italy. This had its complications arising from the use of two overhead line wires and the fixed-speed characteristics of the motors.

The next development to influence the choice of system was the use of interpoles, or commutating poles, in d.c. traction motors. Thus they were made suitable for higher voltages, 1,500 V. at first and later 3,000 V., and main-line electrification with direct current began. During this phase of development, which began about 1915, d.c. traction equipments were lighter and cheaper and required less maintenance than a.c.

British industry has supplied both d.c. and a.c. traction equipments to many countries, but, generally, d.c. has been regarded as the most suitable to meet conditions existing in Great Britain.

Present Practice

Existing railway transmission systems are being changed over to 50 c/s as the older rotary converter plant is replaced by rectifiers. Early 3-phase transmission systems between the sources of supply and the traction substations generally were designed for the comparatively low voltage of 11 kV. with solid-type paper-insulated cables carried beside the track on hooks supported by concrete posts. Experience and research in Britain have aimed at reducing cost and increasing reliability by embodying ring-main systems working usually at 33 kV. There is now a tendency to reduce the number of high-voltage circuit-breakers and this has resulted in appreciable savings.

Twenty years of operating experience has confirmed that the rectifier is entirely satisfactory for power conversion for traction purposes. Rectifiers can

be made with or without grid control and with or without arc-suppression equipment. British experience so far suggests that neither of these is necessary with the air-cooled rectifiers.

During the last 30 years over 1,750 track-miles of British overhead line equipment have been installed in England, Europe, Australia, Asia, South Africa, and South America. A single contact wire supported from a main catenary has proved suitable for high-speed running.

Traction motors were originally of the heavy, totally-enclosed type, having sleeve bearings, but today they are ventilated and have roller bearings. Woven glass materials with Bakelised impregnation are being used increasingly in insulation of the windings. The use of four brushes on four-pole machines permits a lower brush pressure and reduced length of commutator. There is also a tendency to change over to lap windings having an increased number of armature slots.

Reviewing the economics of electrification, Mr. Cock said that, although in suburban schemes the train services usually are increased and improved to the extent that the annual cost of operation is more than that of the displaced steam services, it has been shown time and again that the better electric service attracts enough additional traffic to produce a net increase in revenue. The latest example of this occurred after the electrification of the Liverpool Street-Shenfield line.

Interest and renewal charges represent a considerable proportion of the total annual expenses of electrified services. The fixed charges depend on the cost of the fixed installation, and therefore, any reduction in this will improve the case for electrification. The most important developments affecting d.c. traction in this respect during recent years are the mercury arc rectifier and the supervisory control of substations.

A large part of the cost of electrification lies in the line equipment. While savings may be possible in materials, erection at site under traffic conditions is difficult and expensive. Greater use should be made of mechanised appliances for the installation of foundations and steelwork.

The author considered the use of high-voltage single-phase a.c. at 50 cycles attractive, because it reduces fixed installation costs to a minimum, and it may make possible the electrification of branch lines which could not otherwise be justified. At the same time, the suitability of the larger 50-cycle commutator motor has yet to be proved, especially for use below the floor level of motor coaches, and the unbalancing effect of single-phase traction loads on

the 3-phase supply system must be carefully considered.

Mr. Cock concluded with a call for even greater skill and ingenuity in design and development in regard to detail. He commended attention to electric braking systems as a means of saving costly tyre steel, and suggested as an addition to conventional methods the possibility of a metadyne equipment combined with flywheels to absorb energy from a train when stopping, for use in subsequent starting. His suggestion of using the widest possible range of field control in traction motors as a means of reducing starting resistance losses indicates a line of development hitherto pursued more keenly on the Continent than here. An improved method of incorporating the necessary compensating windings was described in our September 8, 1950, issue, and might overcome the doubts some operators have expressed about maintenance difficulties with compensated motors.

Electricity in Signalling

In their paper on electric signalling Messrs. H. H. Dyer and R. Dell referred to the first applications of electricity to railway working in telegraph systems, followed by the development of the block telegraph as an adjunct to signalling exclusively. At the present time, various controls and interlocks between levers and block instruments, effected by electric locks and other means, have been standardised for block signalling.

The authors showed that the electric track circuit is the fundamental basis of all modern signalling. The introduction of the a.c. track circuit was an important step as it permitted power signalling to be applied more easily on electrified lines where the running rails are used for the traction return current. Development of auto-transformer type impedance bonds today has raised the effective train shunt ten times.

Alternating current also made possible the greater use of long-range day colour-light signals by enabling the low-voltage high-current supply required by the lamps to be made available conveniently. The source of power is a 12-volt secondary battery which is kept fully charged by means of a small transformer-rectifier unit.

At first, electric signal and point machines were controlled by miniature levers with mechanical interlocking, and the use of electric locks, already applied for other purposes, was a natural development. Relay interlocking, first used on the Mersey Railway in 1923, now has reached the point where interlocking frames are replaced, even in the largest installations, by panels with key switches controlling signals, points, and the setting up of whole routes.

Electric Traction by Single-Phase Current at 50 Cycles—1

Some general considerations, and satisfactory experiments in France

FRANCE has been suffering from a coal crisis during the last few years. It is serious because it concerns not only France, but also the whole of Western Europe, and it is the result of a general social evolution which has been accelerated by the war and for which there appear to be uncertain and inadequate remedies.

Reducing Coal Consumption

Considerable efforts are being made now in all branches of French industry to reduce coal consumption wherever possible to ensure adequate supplies for essential requirements. The French Railways consume approximately 9,000,000 tons of coal a year, roughly 20 per cent of national production. Most of this coal is of a quality greatly in demand by important industries which claim priority with insistence. As the railways could obtain their power from sources other than coal—oil and electricity—it was inevitable that they should be invited to make use of alternative means of generating power to economise on coal; this policy was eventually implemented as a result of persistent pressure on the Ministry of Public Works & Transport by the Ministry of Industrial Production.

The development of the use of petrol and fuel oil is limited by the fact that these products are imported, and by the very high price of diesel locomotives, which therefore can be used only on lines where there is sufficient traffic to permit reasonable capital amortisation. On the other hand, the development of electric traction appeared, from the start, to be worth serious consideration for a number of reasons, including:—

(1) *Efficiency.* The steam locomotive, handicapped by weight and size, is considerably less efficient than a modern thermal power station (1 kg. of good-quality coal instead of 0.4 kg. of inferior-quality coal). Even when using electricity generated in thermal power stations, fuel consumption is some 55 per cent. less than that of the most recent types of steam locomotive. If electricity is supplied from a hydro-electric source, for every ton of coal devoted to essential requirements an annual economy of 1.5 tons of coal could be achieved.

(2) *Operating Personnel.* The overall economy of personnel which can be realised by the substitution of electric traction for steam traction is 30 to 40 per cent. This economy is primarily due to a considerable improvement in the use of driving personnel which can be accentuated in the future by the standardisation of certain safety apparatus. Furthermore, electric traction reduces the number of clerical personnel required by eliminating those

engaged in ensuring fuel supplies. By progressively abandoning steam traction there will be a considerable reduction in skilled personnel (mechanics, drivers, boilermakers), whose qualifications, invaluable to a modern nation, can be used to advantage by key industries such as mining, metallurgy, or mechanical construction.

(3) *Social Aspect.* Electric traction also eliminates unpleasant duties such as those of firemen and depot workmen. The absence of smoke is considerably beneficial to railway passengers and also makes it easier to keep clean stations, workshops and buildings alongside the railway.

(4) *Production of Power.* The foregoing considerations would be of little value if the national production of electrical energy were insufficient; the outlook, however, is favourable. The consumption of electrical energy by the French Railways in 1939 was some 1 milliard kW/hr. out of a total production of 20 milliard kW/hr.—that is, approximately 5 per cent., which is relatively little. The programme of new power stations, which aims at doubling the present electrical energy production within the next few years, will allow the railways to double their present consumption without exceeding the present proportion of consumption.

French Electrification Favoured

It can be said that all the circumstances favour a policy of electrification of the French railways—the necessity of improving the energy output, the possibility of making use of hydro-electric energy, the advantage of releasing specialist labour, and finally the necessity of improving the country's tourist facilities and of making travelling more pleasant, the trains cleaner, and railway installations more attractive.

Another point is of considerable importance; although certain French industrial products do not attain the quality of those of their foreign competitors, the standard of electrical equipment built in France is undoubtedly of "international" quality. Electrification of the French railways could therefore be undertaken by French manufacturers and assured of the most modern equipment which, furthermore, would enable French specialists to take part in equipping other countries' railways.

Although the foregoing advantages are considerable, it will have been noted that the majority concern economies in operation. Electrification, on the other hand, entails very heavy installation costs. Under modern conditions the conversion of new lines could be considered by the S.N.C.F. only if the expenditure were markedly reduced. It

cannot be denied, however, that the undertaking would be advantageous as the general interest demands every possible economy in the consumption of coal. At least it would allow the original investment to yield an adequate return.

It is essential to distinguish clearly between investments in rolling stock and investments in fixed installations when considering the economic aspect. The cost of an electric locomotive is roughly twice that of a steam locomotive, but, on the other hand, it does the work of two steam locomotives a year. It is therefore of no great importance whether the S.N.C.F. invests in one type or another so long as the rate of amortisation of the steam locomotive stock is not exceeded. If it is exceeded, there is still a possibility of balancing the purchase price of electric locomotives against working economies which can be realised with electrification, because this expenditure is generally proportional to the traffic.

"Threshold of Economy"

This does not apply to the track equipment where the cost is not proportional to the traffic but varies in accordance with the number of km.; and must be offset directly against the electrification account. The result is that for each track there is a "threshold of economy" determined by the traffic density per km. and the importance of the track equipment.

In France this "threshold of economy" is particularly high because fixed installations are expensive. The current normally used (1,500 volts d.c.) requires substations every 15 or 25 km., which are, in fact, small power stations in which industrial current (three-phase at 60 to 90,000 volts) is transformed into direct current. Furthermore, as the current intensities are particularly high they necessitate large section catenaries which are consequently very heavy; these in turn involve heavy suspension equipment.

When work is finished on the main Paris-Lyons line, only 10 per cent. of the feeder lines would be electrified; this proportion should reach 30 to 40 per cent. to comply with the programme of fuel economy studied by the Government. The importance of the quantity of installations needed can therefore be appreciated. These installations, however, will be required in large numbers for secondary lines because the more one goes in for electrification the more one can appreciate, from the traffic point of view, the necessity for not limiting electrification to the main lines only, and for considering the question on a basis of a network of interconnected lines. The heavier locomotives are of a later type than the light loco-

motives; if the main lines only were electrified the heavier modern steam locomotives would consequently become superfluous and difficult to use elsewhere, and the advantage of economising on maintenance as a result of using modern engines would be lost. There is no question, therefore, of prematurely replacing the new steam locomotives acquired by the S.N.C.F. since the Liberation, whose amortisation extends over 40 years.

Evidently a re-equipment programme which includes a high proportion of secondary lines is of doubtful economic value. The use of direct current at 1,500 volts would allow only a few hundred km. of track to be converted in addition to the main Paris-Lyons line; this was confirmed by conclusions adopted by the senior Railway Advisory Committee in 1923.

The problem, therefore, is: are there systems of electrification which involve fixed installations considerably less expensive than those required for 1,500 volts d.c., and is it possible to use, on the same railway system, two separate systems?

The Italian State Railways have

adopted 3,000 volts d.c. which permits the use of lighter locomotives, but the cost is still too high. On the other hand, alternating current at 16½ cycles, as used in Switzerland, Germany, and Sweden, has given very interesting results because, as the current is converted in the locomotives, the catenary can be subjected to very high tension (15,000 volts, for instance) which allows a considerable reduction in current intensities. This system has therefore the advantages of being able to use a catenary of reduced section, which is therefore lighter, and of increasing the distance between the substations by some 50 km.; it presents, nevertheless, the disadvantage of requiring current specially converted for traction.

The most attractive solution from all points of view would seem to be the supply of single-phase industrial current direct to the locomotive at 50 cycles at high tension. After the Liberation, Monsieur Armand, now Assistant Director-General of the S.N.C.F., was an ardent advocate of this solution. At that time his faith was not shared by many of his colleagues, and a number of eminent engineers felt that past ex-

perience had already irrevocably condemned such a solution.

Monsieur Armand worked with a team of highly specialised engineers who displayed considerable foresight in studying this for future use. In this way, Monsieur de Giacomoni, Engineer of a French electrical construction company, and Messrs. Garreau and Nouvion, Chief Engineers for the Development of Electric Traction of the S.N.C.F., studied the problem with the aid of a group of specialists, and then proceeded to experiment on the Höllental line in the Black Forest, electrified by the Germans at 50 cycles.

After two years of exceptionally hard work, their research studies and the tests they made have vindicated their highest hopes; even the critics who had been most sceptical have been won over.

The considerable economies which this solution would effect over a system of 1,500 volts d.c.—some 50 per cent. on fixed installations—would allow the conversion of secondary lines and thus the electrification of a complete system, comprising not only the main lines but also the feeder lines.

(To be continued)

Equipment for Traction Substations

Constructional features of high-capacity rectifiers of the air-cooled steel-tank type

SINCE the pumpless steel tank rectifier was first used for traction there has been a progressive increase in the capacity of units of this type. Each unit in the original London Transport installation of 1936 for trolleybus supplies at Putney Bridge was rated at 250 kW., whereas the nominal rating of units on the Liverpool Street-Shenfield electrification is 2,000 kW. The size of the equipment now commonly installed makes the question of handling the cylinders for installation, inspection, and maintenance of growing importance.

With these considerations in mind, the General Electric Co. Ltd. is adopting a new form of construction for rectifiers of high current rating. The platform on which the cylinder stands in the cubicle now forms the top of a movable truck, with the rectifier above and its auxiliaries below, so that the whole unit can be withdrawn easily for inspection in one operation when necessary. Connections between the truck and the cubicle are designed to facilitate withdrawal.

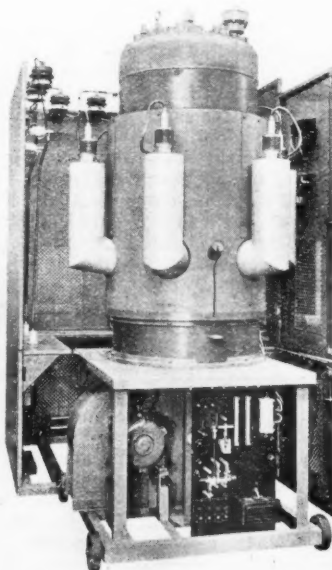
The centre of gravity of the complete truck assembly is well below the bottom of the anode arms, so that the truck is completely stable and can be moved easily on a smooth floor. When necessary, rectifier cylinders can be off-loaded from a lorry on to their trucks and

wheeled into position in the cubicles. Local conditions may cause alternative arrangements to be necessary, such as the mounting of cylinders direct on

the substation floor, with the cooling fans below. The form of cubicle construction is readily adaptable to a special requirement such as this, an example of which is seen in eight 1,500 kW., 1,600 V., twin-cylinder rectifier equipments being supplied by the G.E.C. to the New Zealand Government Railways.

By introducing control grids in a mercury-arc rectifier, protection can be given against overloads and backfires supplementary to that afforded by the usual circuit-breakers. Experience at the 3,000 V. substations of the South African Railways has shown that usually a backfire is cleared by arc-suppression through the control grids without the oil circuit-breakers opening and shutting the substation down. In principle, the method used is the automatic connection of the grids to a point of negative potential relative to cathode, this result being effected by a high-speed relay.

An electronic system of applying the arc-suppression potential has been adopted in new equipment supplied by the G.E.C. to the Sefton substation of the New South Wales Government Railways. Bias for the 1,500 kW., 1,500 V. rectifier is controlled by electronic apparatus in a separate cubicle, connected with two current transformers embodied in the main rectifier transformer.



G.E.C. 1,250-A. pumpless air-cooled steel-tank rectifier of the draw-out type

Laminated Plywood in Van Building

New American design embodying cellular construction resulting in great saving in weight

A NEW type of railway van has been developed by the Pressed Steel Car Company of the U.S.A. The prototype, shown in Chicago last December, underwent a ten-day test covering 6,000 miles running in trains with a conventional steel van; both were equipped with instruments for recording forces resulting from shocks and violent movements sustained in train operation. It was then to be released to the Association of American Railroads for further testing before being approved by the association for general use.

Construction of Superstructure

The superstructure is built of laminated plywood and, if equipped for refrigeration, may be used for conveying all types of freight. It was designed by Mr. Bertrand Goldberg, a member of a Chicago firm of architects and engineers, and built at the Pressed Steel Car Company's works. Without refrigerating equipment the van requires 11 short tons less steel than the conventional steel van; with it, it requires 18 to 20 tons less. It is also five tons lighter on the rails, and high-strength alloy steels are not needed in the construction.

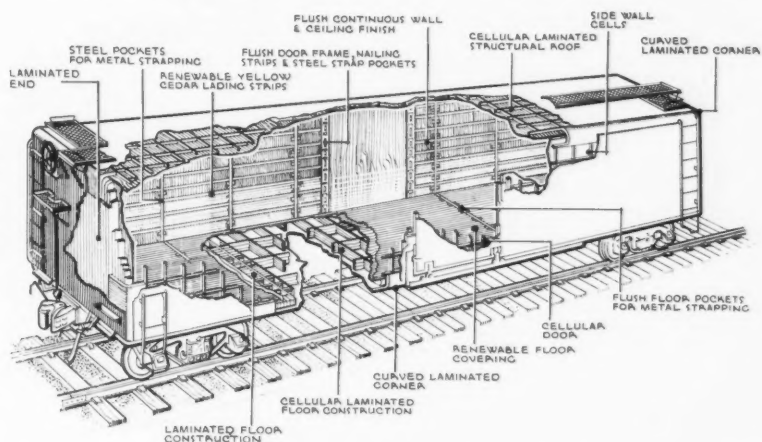
Semi-skilled workers can build the body in approximately half the man-hours required by a comparable steel van. It is estimated that the van without refrigeration equipment can be built at some 10 per cent. less cost, and with

refrigeration from some 20 to 25 per cent. less cost than corresponding steel vans.

The van has been named the Unicel because of the novel construction, developed during two years of study and designing. The basic body material is plywood, such as Douglas fir. An odd number of veneer sheets is coated with waterproof phenolic and resorcinol plastic adhesives and superimposed, with the grain of alternate sheets at right angles, then permanently

bonded under pressure and heat. To obtain maximum strength with light weight, the thin high-density sheets thus formed are bonded to both sides of a relatively thick core of lighter wood to support the strong facing sheets and form rigid panels, which can be stressed almost to ultimate strength without bending.

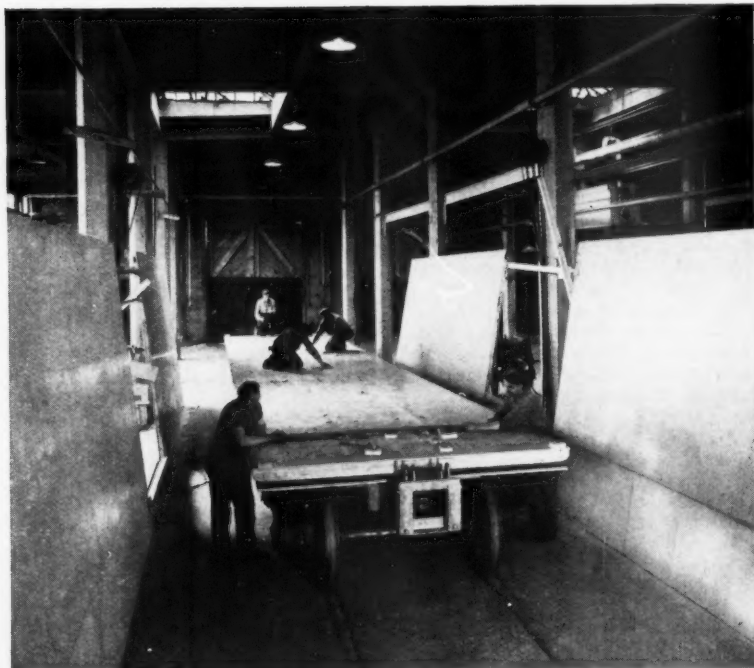
Floor, sides, and roof are built by bonding the sandwich stressed-skin panels to both sides of laminated wood ribs extending in two directions at



Cut-away drawing showing cellular construction formed of laminated wood ribs with plywood panels bonded to both sides



Prototype Unicel van built of laminated plywood bonded with plastic adhesive into a monocoque unit



Finishing the floor of the Unicel van. At right and left, completed cellular sides ready for bonding to the floor

right angles and spaced 16 in. apart centre to centre. This produces a box-girder cellular type of construction with high resistance to compression, flexural, and torsional forces. Plywood facing bonded to a laminated core of vertical, 2 in. \times 4 in. members forms the ends, which are subjected to the heaviest shocks in shunting. They can sustain a uniform load of 265,000 lb., and the car sides a uniform load of 200 lb. per sq. ft.

Bonding Sub-Assemblies

Each of six complete cellular sub-assemblies—floor, two sides, two ends and roof—is built and bonded in an electronic press; all six are then bonded together into a unit body. The process is simple, faster, and cheaper than any method used in constructing conventional vans. Equipment used consists of Thermex high-frequency dielectric heating apparatus manufactured by the Girdler Corporation and used in conjunction with a specially designed, downward-acting Frisch hydraulic press capable of exerting a pressure of 900 tons.

With the assembled materials under a pressure of 150 to 200 lb. per sq. in., the bonding is carried out by uniform internal induction heating to 200° F., which cures and sets the adhesive. This heating is extremely rapid; an 8-in.-thick stack of plastic-coated oak veneers which would require up to 8 hr. for bonding between hot press platens can be processed in 5 min. by radio-frequency electric heating. Different materials can be bonded at the same time to produce an integral structure in

a single operation. Thus, the company plans to bond together the core, plywood face, a masking stock, and an outer sheet of paper having an impregnated content of about 50 per cent. resin blended with suitable colour material and stencilled with wording. The surface so formed will be impervious to water, and the stencilling permanent, rendering painting unnecessary.

Crosswise spacing members, separated by laminated blocking at the end sills, and laminated plywood facing form the

floor, on which is laid replaceable non-skid Masonite $\frac{1}{4}$ -in. thick with a wear-resistant surface. The end sections of the floor are built up solidly of laminated wood over the bolsters between the bottom sheets and floor sheets. The floor has a depth of 9 $\frac{1}{2}$ in. exclusive of Masonite. The ends of the van in addition are faced with Masonite and are 5 $\frac{1}{2}$ in. thick; sides and roof are both 2 $\frac{3}{8}$ in. thick.

Cross-laminated plywood angle sills 1 in. thick moulded to a cross-section curve bond the several sub-assembly panels together along all horizontal and vertical lines. Side sills with one flange 12 $\frac{3}{8}$ in. wide and the other 7 $\frac{3}{8}$ in. wide extend the full length of the van and join the sides to the floor and roof. Similar sills 1 in. \times 12 $\frac{3}{8}$ in. \times 13 $\frac{3}{8}$ in. extend the full width of the van ends at top and bottom, and full height at the corners.

A patented door frame of steel plate with shear grips to prevent distortion from true rectangular shape has a clear opening 8 ft. wide and 8 ft. 1 in. high, and is fitted with a plug-type door 2 $\frac{3}{8}$ in. thick. All the foregoing members except the doors are bonded into a complete unit body like the monocoque stressed-skin fuselage of an airplane, but with no nails, screws, rivets, or protruding bolts and nuts.

Shock Absorbing Features

The van dispenses with an underneath centre sill such as the steel sill which extends the full length of a conventional van and on which the steel underframe is constructed. Instead, the plywood body supports both its own weight and that of its lading. Also, the heavy shocks of coupling in trains and of starting and stopping are dispersed harmlessly throughout the structure. This makes possible a 30 per cent. reduction in weight compared with a comparable steel van.



Laminated angle sills moulded to a cross-section curve extending full length and width of the body

Tests are said to have shown that impact forces which may be greater than 1,000,000 lb. are distributed so that the maximum stress at any point is only approximately 3,000 lb. per sq. in.; localised stresses in conventional vehicles become as high as 50,000 lb. per sq. in. because they are not distributed effectively.

Impact forces are cushioned by an assembly consisting of a short centre sill housed within a laminated wood body bolster at each end of the van and containing a steel drawgear and coupler. The bolster is approximately 10 in. deep and extends about 3 ft. 4 in. behind the bogie centre line and 1 ft. 6 in. in front of it. The drawgear can move longitudinally approximately 1½ in. in either pull or buff. Welded to the rear end of the sill is a steel impact plate 2 in. × 26 in. × 11½ in. sandwiched between two 3 in. thick rubber cushions assembled under slight compression to avoid undesirable slack.

This construction is an economical and successful application to vans of the rubber drawgear cushioning which has been used in 88 per cent. of American passenger coaches built since 1941. It avoids the tendency of the conventional centre sill and drawgear to "go solid" when impacted at a speed of about 5 m.p.h. so that adequate shock absorption is lacking at higher impact speeds and damage to vehicle and lading often results. No such solid mechanical resistance occurs in the rubber-cushioned drawgear, which is said to cushion impacts caused by crash speeds up to even 20 m.p.h.

Comparative tests of a Unicel van and a standard steel van, each with a gross laden weight of 169,000 lb., were conducted by the Armour Research Foundation and observed by officials of the Association of American Railroads. When the two vans were impacted at 12½ m.p.h., the force recorded in them was more than 25 per cent. less than would occur if two steel vans of that gross weight were impacted at that speed.

Dimensions and Load Capacity

The plywood van, because of its relatively light weight, thin walls, and greater length, has more load capacity for a given gross weight than the ordinary van. The principal dimensions are as follow:—

	Inside	Outside
Length	50 ft. 6 in.	—
Width	9 ft. 2 in.	9 ft. 7½ in.
Height	9 ft. 2½ in.	13 ft. 3½ in.
Volume	4,253 cu. ft.	—
Payload weight capacity	65 short tons	—
Bogie spacing, centre to centre	41 ft. 4½ in.	—
Total weight of steel...	—	About 18,000 lb., nearly all in bogies, wheels, and brakes

The 8 ft. × 8 ft. door clearance makes mechanical loading rapid and easy. The reinforced floor can support safely a 10,000-lb. lift truck carrying a capacity load of 6,000 lb. Tie-down steel strapping contained in flush pockets in the floor and walls facilitates securing freight units at all levels within the van quickly and economically. The system not only prevents damage from load shifting and also pilfering, but simplifies the loading of the van to cubic capacity

and the division of less-than-wagonload consignments for discharge at successive destinations; such consignments can be strapped behind a movable gate extending the full height of the body and secured with a steel seal. Use of timber dunnage and nailing to the interior are eliminated.

For hauling loose products such as grain, the van presents a smooth floor and walls free from cracks. Thus, it is easy to sweep clean and, being waterproof, may be washed.

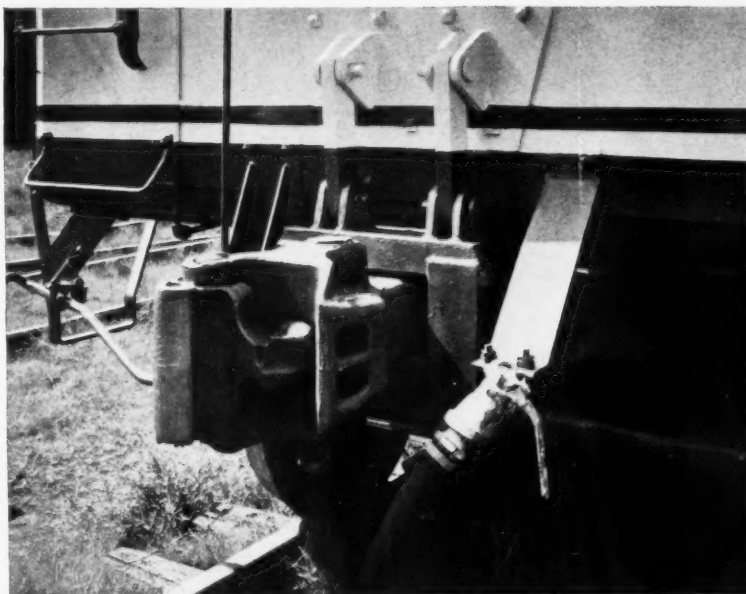
Adapted for Refrigeration

The type of construction is excellently suited to the transport of fresh meat, fruit and vegetables, which must be maintained at constant low temperatures. Not only is wood a much better heat insulator than steel, but the cellular construction forms dead-air spaces which

desired point below freezing. The temperature fluctuated too much and too many icings were required.

The engineers therefore built an inside false wall and equipped the van with a mechanical refrigerating system. The wall allows cold air to circulate in the space between it and the inner face of the van wall, thus surrounding the lading with a blanket of confined air which can be chilled. Just enough cold air can be introduced into the lading to absorb the heat generated by enzymic action of fruits and vegetables without appreciably dehydrating them. Dispensing with ice bunkers gives the 50 ft. van 75 per cent. more payload volume capacity than a 40 ft. icing van of the same deadweight.

The van is equipped with duplicate, independent, refrigerating systems to ensure safety of the contents if one fails.



End of completed van with coupler installed in shock-absorbing drawgear

prevent the circulation of air and consequent transmission of heat through walls and roof of the structure. These properties are enhanced, when the van is intended for refrigeration, by the addition of an inner wall filling of styrene plastic foam which provides conductive insulation at low temperatures and is faced with a coat of a material which reflects 70 to 95 per cent. of solar radiation.

For test purposes, the first Unicel van built was fitted with ice bunkers with 60 per cent. more ice capacity than conventional ice-bunker vans. During exposure for days under infra-red rays which created an external surface temperature of 100° F., the ice-cooled interior showed a rise of only 4-6°, with outside temperature increases of over 100 degrees. The inside temperature could not be brought down satisfactorily with ice to near zero, as required for some commodities, nor maintained at a constant

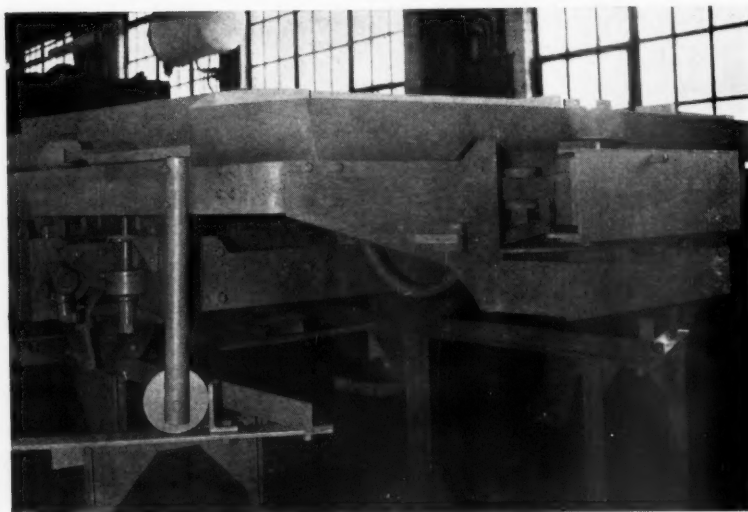
Operating one alone will maintain an inside temperature of 30° when outside air temperature is 100°. With both systems operating, the van temperature can be held at any point from 0° to 55° by setting an automatic control.

The systems consist of an Onan diesel-powered electric generator, a Copeland compressor unit driven by an electric motor, two diesel fuel tanks, a system of circulating coils together with fans and a 4,000-watt built-in heater for defrosting the coils and supplying heat in frigid weather. Generator, compressor, and fuel tanks are installed below the van floor, with the Onan and Copeland units cushioned in rubber on five sides in a cabinet having a built-in overhead monorail hoist for use in removing and replacing them. The tanks have capacity for enough fuel for approximately eight days of continuous operation, and the system is equipped

(Continued on page 672)

Models as an Aid to Tube Rolling Stock Design

Recent developments by London Transport include the use of full-size wooden bogies



Model bogie used in the design of tube stock

THE use of models for resolving engineering problems is well known, and the building of a mock-up to demonstrate a new coach body design has been practised for many years. Further developments in the use of full-size models have been in use for some time in the workshops of London Transport. These are models produced solely for engineering purposes as distinct from operating requirements, and they are intended to solve problems brought about by limitations of space in London Transport rolling stock.

Complete full-size bogies have been constructed in wood, with attachments such as shoe gear, brake cylinders, and so on, providing in this way a clear indication of the problems involved in providing adequate mechanical and elec-

trical clearances. The use of such models has been of great advantage in observing and overcoming difficulties in design not immediately apparent on the drawing board.

One such model bogie has been produced in connection with future tube stock design and is shown in the photograph reproduced above. The bogie is mounted on a platform and above it has been constructed the headstock and that part of the underframe associated with the drawgear and buffer arrangements.

Models of this gear, together with the automatic coupler, have been made and fitted. The superstructure above the bogie is arranged to rotate about the bogie centre to represent the greatest curvature met in service.

This bogie also includes a new type of bolster suspension, together with a new design of retractable shoe gear which eliminates the wooden shoe beam, while compensating gear is provided with the object of keeping the shoe at a constant height.

The advantage of seeing all this gear on a full-size model in three dimensions has proved invaluable in finalising detailed design, especially where the parts move relatively to one another in service, and it has been possible to arrange the best layout of air hoses and electrical jumpers without the risk of fouling other equipment nearby.

Apart from demonstrating operating facilities, full-size car body models are very useful for experimenting with new types of interior finish which can be easily tried out with new methods of fixing.

Lighting Experiments

New systems of lighting can also be tried, and wiring up is simplified by being carried out on the outside of the ceiling. For lighting experiments a model is fitted with canvas blinds which can be rolled down outside the body to exclude daylight and so enable the full effects of various lighting schemes to be immediately assessed. Such a model is also used to determine the best position for route diagrams and advertisements in relation to lighting, the best form of windscreens at doorways, and the height and location of handgrips and handrails.

It has been found that the use of full-size models allows the finalising of rolling stock design to a far greater extent than hitherto. Previously, it was not until the first car of a contract had been produced that the full effect of design changes could be seen, and any variation required meant some delay.

Laminated Plywood in Van Building

(Concluded from page 671)

with gauges which indicate when refuelling or resetting of the temperature control is required. Provision is made also for automatic ventilation of the car for removal of objectionable smells or possible excessive humidity.

During the 6,000-mile test already mentioned the van was hauled over the tracks of seven railways in the central and eastern United States. It travelled in local trains, and through trains running at speeds up to 65 m.p.h., and was subjected to the same handling as the other vans, being switched, placed in different positions in the trains from next to the locomotive to the tail end, and started and stopped innumerable times. It traversed tangent tracks, re-

verse curves and mountain gradients, and encountered all weather conditions.

At the conclusion of the test, sections of body were torn open sufficiently for the inspection of floor, sides, ends, roof and sills. The engineers and construction men reported that the bonding of the laminated pieces was intact and structure undamaged. Laboratory tests have shown that the phenolic bonds are stronger than the wood, can withstand an unlimited number of wet and dry cycles, and are little affected by heat that will char wood.

An operating advantage of the construction is that most damage to be expected in service will require only light repairs, which unskilled or semi-skilled workmen can make, using simple tools and materials, such as a small electric portable circular saw or an ordinary

hand saw, hammer and nails for creating bonding pressure, plywood sheet and bonding adhesive.

They would saw away the damaged area of plywood skin up to about the middle of ribs nearest the section, cut a sheet of plywood to fit the opening, apply adhesive to ribs and plywood where they are to be bonded, and nail the sheet in place. If ribs are damaged, new pieces can be laminated and inserted. Therefore the making of repairs is fairly simple and quite inexpensive carpenter or cabinet-maker work.

IRON AND STEEL OUTPUT.—Steel production in May was affected by the Whitsun holidays and was at an annual rate of 15,864,000 tons as compared with 16,597,000 tons in May last year.

Shunting Locomotives for the Sudan Railways

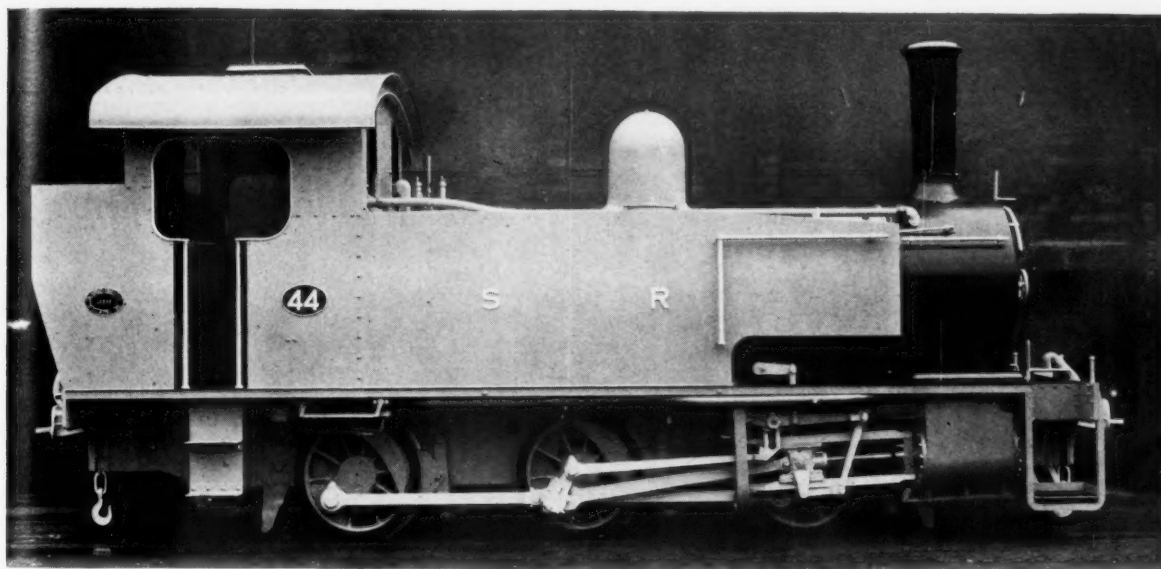
Ten 3-ft. 6-in. gauge tank engines for heavy duties

AMONG the orders recently completed by the Hunslet Engine Co. Ltd. is one for ten six-coupled tank locomotives for the Sudan Railways. The locomotives, which have been constructed to the limits and fits practice of the L.M.A., are required for heavy shunting in goods yards and for service in station sidings.

Weighing 36.75 tons in working order, this locomotive provides a tractive effort of 13,400 lb. at 75 per cent. boiler pressure, and a saturated boiler is fitted containing 111 tubes of 2 in. outside diameter. The number of tubes was deliberately restricted because of bad water; for this reason the bottoms of the tube plates are clear of tubes so as to

provide ample space for the removal of scale along the bottom of the boiler barrel during washout.

For similar reasons the boiler is fitted with 18 washout plugs and four mud-hole doors. The barrel is constructed of two rings, 3 ft. 7½ in. dia. and 3 ft. 8½ in. dia., and is 9 ft. 5 in. long. A copper firebox 5 ft. 9 in. long over the back-



A six-coupled shunting locomotive built for the Sudan Railways

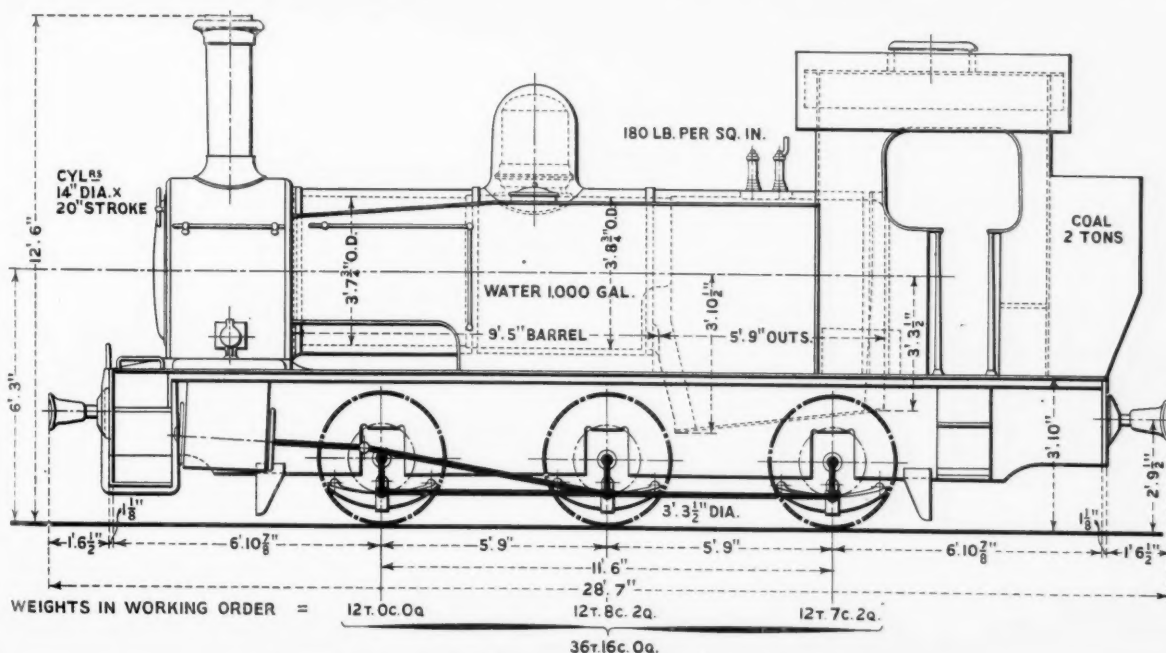


Diagram showing principal weights and dimensions of the locomotive

plate is fitted. The boiler is supported at the rear by expansion angles riveted to the firebox sides, while the smokebox is riveted to an extension of the top of the frame, above the front frame stretcher.

Boiler and firebox are lagged with magnesite blocks $1\frac{1}{2}$ in. thick on the barrel and 1 in. thick on the firebox; two Ross-pop safety valves are fitted. The front half of the grate is of the lever operated drop type.

The cylinders, 14 in. dia. by 20 in. stroke, are set at an incline of 1 in 20, and are lagged with magnesia blocks.

The flat slide valves are fitted with balancing strips. Cylinder lubrication is provided by a Detroit-sight-feed lubricator. Cast-steel axleboxes have gun-metal bearings, with Stone's C white-metal inserts; liners are of phosphor-bronze and lubrication is by a Wakefield mechanical lubricator.

Hand and automatic vacuum brake equipment is installed, the latter having one 21 in. dia. cylinder. Because of the extreme heat in the Sudan, the cab has been designed with a view to providing adequate ventilation and shade, and a double roof has been fitted, together

with a ventilator. There are no windows; holes are provided in the front and rear weather boards. The roof plate extends over the cab 1 ft. $1\frac{1}{2}$ in. on each side.

The principal dimensions of the locomotive are as follow:—

Cylinders (2)	...	14 in. dia. by 20 in. stroke
Wheels, dia.	...	3 ft. $3\frac{1}{2}$ in.
Heating surface:—		
Boiler and flue tubes	...	566 sq. ft.
Firebox	...	71.5 sq. ft.
Total evaporative	...	637.5 sq. ft.
Grate area	...	10.9 sq. ft.
Boiler pressure	...	180 lb. per sq. in.
Tractive effort at 87 per cent. boiler pressure	...	13,400 lb.
Water capacity	...	1,000 gal.
Bunker capacity, coal	...	2 tons

British Railways Standard Rolling Stock



The photograph reproduced above, taken at Shenfield on the Eastern Region, shows a complete train of British Railways standard coaching stock hauled by "Britannia," standard 4-6-2 locomotive No. 70000

LENGTH OF SINGLE-DECK PUBLIC SERVICE VEHICLES.—The maximum overall length of all four-wheel single-deck public service vehicles may, as from June 16, be 30 ft., irrespective of the date of first registration of the vehicle. This is laid down by the Motor Vehicles (Construction & Use) (Amendment) Regulations, 1951, made by the Minister of Transport.

INTERNATIONAL TRAVEL POSTER COMPETITION.—Prizes to the total of \$2,250 are offered in an international poster competition to be organised under the sponsorship of the European Travel Commission. Entries are invited from all Western European countries and each country taking part will set up a panel of experts to judge entries from its own nationals.

The three best entries from each country will then be forwarded for judging by an international jury in Brussels, consisting of representatives from the European Travel Commission, the International Union of Official Travel Organisations, and the Organisation for European Economic Co-operation. The competition is open to anyone in the United Kingdom, and in this country entries will be judged by a panel to be appointed jointly by the Royal Society of Arts and the British Travel & Holidays Association. The theme of the poster will be "Travel is the Sign of Freedom" and its design is to encourage international travel. August 8 is the closing date. British competitors should send their posters to the Production Manager, British Travel &

Holidays Association, 17, Douglas Street, London, S.W.1; marking the wrapper "Poster Competition," and all entries should be accompanied by a postal order for 1s. to cover the cost of their return.

NEW STATION FOR CARPENDERS PARK.—Plans for a new passenger station, estimated to cost £90,000, at Carpenders Park, on the Watford electric line of the London Midland Region, have been approved by the Railway Executive. The present station, which consists of timber buildings, was opened in 1914 as a halt to serve Oxhey golf course. The new station has been designed by the Architect to the London Midland Region, and in its construction full advantage will be taken of modern materials construction.

RAILWAY NEWS SECTION

PERSONAL

PRESENTATION TO MR. H. G. IVATT

Mr. H. G. Ivatt, Chief Mechanical Engineer, London Midland Region, British Railways, who is retiring at the end of this month, was the recipient of a presentation from Mr. R. A. Riddles, Member of the Railway Executive for Mechanical & Electrical Engineering, at Derby on June 5. The presentation was made at a luncheon which

Traffic Manager from 1947 and also as Traffic Manager for a short time in the same year. At the time of partition he opted for Pakistan and was transferred to the North Western Railway. Shortly after joining the North Western Railway, Mr. Hewitt was appointed Divisional Superintendent, Multan, in 1947, and in June, 1948, he became Chief Operating Superintendent. He was appointed General Manager in 1950.

Mr. Baqir Ali Khan Qizilbash, Chief Operating Superintendent, North Western Railway, who, as recorded in our June 1 issue, has been appointed to officiate as General Manager, was born in January, 1898, joined the State Railways as an Assistant Traffic Superintendent in 1922, and was posted to Karachi as Assistant Transportation & Commercial Officer in 1924. He was promoted to the senior scale in 1935 and worked in the Transportation,



Mr. W. A. Hewitt

General Manager, North Western Railway, Pakistan, who is in the United Kingdom on leave



Mr. B. A. K. Qizilbash

Appointed to Officiate as General Manager, North Western Railway, Pakistan

followed the last Works Superintendents' meeting to be held by Mr. Ivatt before his retirement.

Mr. W. A. Hewitt, General Manager, North Western Railway, Pakistan, who, as recorded in our June 1 issue, is in the United Kingdom on leave, was born in May, 1900, and was educated at St. Peter's College, Radley, where he gained an exhibition. In 1917 he joined the L.N.W.R. as a probationer and served in H.M. Forces from 1918 to 1919. After resuming his duties with the L.N.W.R. Mr. Hewitt gained experience in various branches of the Operating and Commercial Departments; he also attended a number of courses on different subjects connected with railways, at the London School of Economics and at Victoria University, Manchester. In 1924, he joined the Bengal & North Western Railway, India, as Assistant Traffic Superintendent and was promoted District Traffic Superintendent in 1937. Mr. Hewitt officiated as Deputy

The Honourable J. E. Duggan, Minister of Transport for Queensland, and Mr. V. Hall, Chief Mechanical Engineer, Queensland Government Railways, are on a visit to Great Britain. Mr. Duggan expects to return to Queensland on June 24 and subsequently will be followed by Mr. Hall.

LONDON MIDLAND REGION APPOINTMENTS

The following staff changes are announced by British Railways, London Midland Region:—

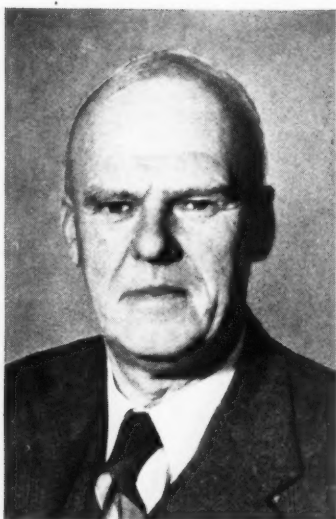
Mr. J. Smith, Assistant to District Operating Superintendent, London (Midland), to be Assistant to District Operating Superintendent, London (Western).

Mr. W. R. Haynes, Deputy Chief Controller, Operating Superintendent's Office, Liverpool Street, Eastern Region, to be Assistant to District Operating Superintendent, Derby.

Mr. J. Hopwood, Yardmaster, Wakefield, North Eastern Region, to be Assistant to District Operating Superintendent, Barrow (located Workington).

Commercial and Personnel Branches in various Divisions of the North Western Railway. In 1942 he was transferred to the Headquarters Office as Senior Assistant, Personnel, and rose to be Deputy General Manager, Personnel, in 1945. After working for a brief period immediately after partition as Joint Director, Traffic, Railway Division, Pakistan Government, he was posted to Lahore as Divisional Superintendent. In June, 1949, he was appointed to officiate as Chief Operating Superintendent, North Western Railway, and was confirmed in that position in April, 1950.

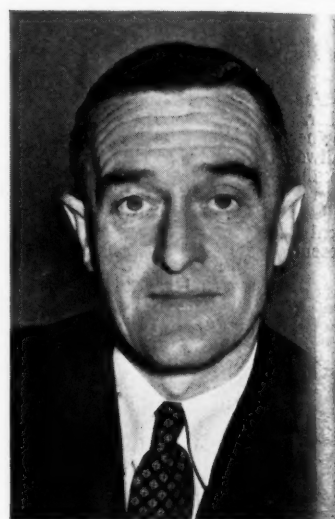
Mr. H. R. Naylor, Works Manager of the Angus Shops, Montreal, Canadian Pacific Railway, has retired, and has been succeeded by Mr. W. D. Dickie, Assistant Works Manager, Locomotive, Angus. Mr. Naylor began his career in England with the North Eastern Railway and joined the Canadian Pacific Railway Angus Shops in 1907.

**Mr. G. Rogers**

Appointed Chief Traffic Manager,
Victorian Railways

**Mr. T. R. Collier**

Appointed Assistant Chief Traffic Manager,
Victorian Railways

**Mr. H. M. Blackwood**

Appointed Public Relations Officer to the
Tasmanian Transport Commission

Mr. G. Rogers, formerly Assistant General Superintendent, Victorian Railways, who, as recorded in our June 1 issue, has been appointed Chief Traffic Manager, joined the railway department in 1907 as a lad porter. He was Stationmaster at Locksley in 1914, remained there for three years before joining the relieving staff, and subsequently served in the Tourist Bureau and at Railways' Head Office, Melbourne, in the Timetables Division. Mr. Rogers was appointed Traffic Inspector in 1922, and four years later, went to Geelong as Assistant District Superintendent. He became District Superintendent at Seymour in 1931, Metropolitan Superintendent in 1936, and Superintendent of Train Services in 1940. During this period he was engaged on industrial work with the department's advocate before the Classification Board, and also did research work with the Transport Committee. Before his appointment as Assistant General Superintendent last

year, Mr. Rogers was Outdoor Assistant to the General Superintendent.

Mr. T. R. Collier, who, as recorded in our June 1 issue, has been appointed Assistant Chief Traffic Manager, Victorian Railways, joined the transportation branch in 1910 as a lad porter, and since then has had wide experience as Stationmaster, Train Dispatcher, Traffic Inspector, Assistant District Superintendent, District Superintendent and Metropolitan Superintendent. In the first World war he rose to the rank of Lieutenant and won the Military Cross and Bar. During the recent war he was transferred from the railways at the request of the Commonwealth Government, and subsequently became Director of Railway & Road Transportation in the Department of the Army, with the rank of Colonel. When he returned to the railways he was made Staff Superintendent in the then Transportation

Branch. Mr. Collier has been President of the Victorian Railways Institute for three years.

Mr. H. M. Blackwood, who, as recorded in our June 8 issue, has been appointed Public Relations Officer to the Tasmanian Transport Commission, has had extensive experience in journalism. For ten years before 1936, he was on the literary staff of *The Advocate* and resigned to enter the public service as Private Secretary & Publicity Officer to the Premier of Tasmania; in 1939 he was appointed to the position of Assistant Secretary of the Transport Commission. In his capacity of Public Relations Officer, Mr. Blackwood will be giving special attention to publicising the new equipment, which includes diesel railcars. In addition to his duties as Public Relations Officer, Mr. Blackwood will continue as Secretary of the Road Safety Council of Tasmania.

**Mr. W. Crawford**

Appointed Assistant to Operating Superintendent,
Southern Region

**Mr. F. G. Crabb**

Appointed Assistant to Commercial Superintendent
(Freight Rates & Charges),
Eastern Region

**Mr. A. T. Salmon**

Appointed Publicity Assistant,
Eastern Region

Mr. W. Crawford, Chief Trains Clerk, Southern Region, who, as recorded in our May 18 issue, has been appointed Assistant to the Operating Superintendent, began his career in 1904 in the Office of the Superintendent of the Line, S.E.C.R., and from 1914 to 1918 was a member of the railway committee dealing with War Office emergency schemes. In 1924 he went to the Chief Operating Superintendent's Department, Waterloo, Southern Railway, and was promoted Chief of Passenger Section in 1941, and Chief Trains Clerk in 1945. In 1944 Mr. Crawford was the Southern Railway representative appointed to consider and report, in conjunction with the L.P.T.B., on postwar development of London railways. The following year he became a member of the sub-committee appointed by the Railways (London Plan) Committee. He was awarded the M.B.E. in 1948.

Mr. F. G. Crabb, Assistant to Commercial Superintendent (Rates & Charges—Goods), Eastern Region, who, as recorded in our June 8 issue has been appointed Assistant to Commercial Superintendent (Freight Rates & Charges), Eastern Region, was educated at Trinity Grammar School, Wood Green, and entered the service of the former Great Northern Railway as a junior clerk at Kings Cross Goods in 1913. During the 1914-18 war he served with the Honourable Artillery Company from January, 1917, until October, 1919, and on his return to railway service had experience at various goods stations and in the London Suburban District Goods Manager's Office. He was appointed Chief Clerk, Tottenham, in 1936 and was transferred to the Goods Manager's Office, L.N.E.R., London, in 1937. In 1945 Mr. Crabb was appointed Chief Claims Clerk, Goods Manager's Office, and was responsible for the widening of the Claims Prevention Organisation. He remained in this position until 1946 when he became Deputy Chief Assistant, Goods Rates & Charges, in the same office, and in 1948 was appointed Assistant to Commercial Superintendent (Rates & Charges—Goods), Eastern Region.

Mr. A. T. Salmon, Production Assistant to the Publicity Officer, Railway Executive, who, as recorded in our May 25 issue, has been appointed Publicity Assistant to the Public Relations & Publicity Officer, Eastern Region, joined the service of the Great Central Railway in 1919 and until the amalgamation in 1923 was employed in the Chief Goods Manager's Office. He was then transferred to the Managing & Salaried Staff Section of the Chief General Manager's Office of the L.N.E.R. From 1930 to 1940 he served successively in the Continental, Holiday Resorts and General Facilities Sections of the Advertising Manager's Office, Marylebone. After a further period of nineteen months in the Chief General Manager's Office he was appointed to a Staff post in the Divisional General Manager's Office, Edinburgh, and in 1946 became Chief Staff Clerk to the Superintendent, Locomotive Running Superintendent & Passenger Manager, Scottish Area, L.N.E.R. He remained in Edinburgh until the end of January, 1949, when he was loaned to the Railway Executive, and he was appointed as Production Assistant to the Publicity Officer, Railway Executive in March, 1949.

Messrs. H. R. Cayzer, M. A. R. Cayzer, and B. G. S. Cayzer have joined the board of the Foreign Railways Investment Trust Limited.

The King's Birthday Honours List

The following is a selection, further to that published in our last week's issue, of honours of transport and industrial interest from the King's Birthday list:—

C.B.

Mr. John Robert Willis, M.C., Under-Secretary, Ministry of Transport.

C.B.E.

Mr. Archibald Campbell, M.I.Mech.E., M.I.Loco.E., Chief Mechanical Engineer, Office of the Crown Agents for the Colonies.

Mr. William James Moffatt, Director-General, Iraqi State Railways.

O.B.E.

Mr. Lionel Cleaver, A.M.I.C.E., Harbour Engineer, Docks & Canals Division, Ministry of Transport.

Lt.-Colonel Ronald Hazell, M.B.E., T.D., lately Ministry of Transport Representative in Poland.

Mr. Bertram Howard Johnson, Chief Engineer, Rhodesia Railways.

Mr. William Marsh, Assistant to the Accountant, British Railways, Southern Region.

Mr. John Matthew Drennan, D.C.M., Head of Department, Class B, Office of the Crown Agents for the Colonies.

Mr. Albert Berina Sturges, Chief Executive Officer, Ministry of Transport.

Mr. Mark Hartland Thomas, F.R.I.B.A., Chief Industrial Officer, Council of Industrial Design.

M.B.E.

Mr. Ernest Barker, Chief Foreman, Boiler Department, Locomotive Works, Gorton, Railway Executive.

Mr. Herbert Robinson Blyth, Passenger Trade Group Secretary, Transport & General Workers' Union (Region No. 8).

Miss Dorothy Helen Brown, Higher Executive Officer, Ministry of Transport.

Mr. Frederick William Clifton, J.P., General Secretary, London Transport (Central Tram & Trolleybus) Sports Association, London Transport Executive.

Mr. James Norman Stewart Craig, Higher Executive Officer, Ministry of Transport.

Mr. George Furlong, for services to Railway Department, Mauritius.

Mr. Sidney George Jemmett, Assistant for Special Duties to the Restaurant Car Superintendent, Hotels Executive, British Transport Commission.

Mr. John Charles Kirkpatrick, Chief Welfare Officer, English Electric Co. Ltd.

Mr. Lawson William Lane, Deputy Chief Transportation Officer, Rhodesia Railways.

Mr. Alfred James Randall Master, Assistant Superintendent (Hotels & Catering), East African Railways & Harbours.

Mr. William Christopher Meredith, Foundry Manager, Hadfields Limited.

Mr. Arthur Frederick Moss, District Operating Superintendent, Glasgow, Scottish Region, British Railways.

Mr. George Frederick William Patterson, Chief Metallurgist, Murex Limited.

Mr. Joseph Ernest Peirson, Group Manager, Bermondsey Group, South Eastern Division, Road Haulage Executive.

Captain James Laurence Peter-on, Dockmaster, Barry, Docks & Inland Waterways Executive.

Mr. Edward John Cecil Reed, A.M.I.C.E., Senior Resident Engineer, Civil Engineer's Department, British Railways, Southern Region.

Mr. Arthur Ernest Roberts, Senior Executive Officer, Ministry of Transport.

Mr. Arthur Charles Herbert Sewell, Higher Executive Officer, Office of the Crown Agents for the Colonies.

Mr. John Barron Sheehan, Senior Executive Officer, Ministry of Transport.

Mr. Walter Rawson Snell, Production Manager, Main Diesel Works, Ruston & Hornsby Limited.

Mr. Sidney Charles Taylor, Clerical Officer, Ministry of Transport.

Mr. Thomas Tinning, Stationmaster, Glasgow Central, Scottish Region, British Railways.

Mr. Stanley Cecil Wells, Traffic Manager, East Yorkshire Motor Services.

Companion, Imperial Service Order

Mr. Percy Roy Angus, A.M.I.Mech.E., M.N.Z.I.E., lately Chief Mechanical Engineer, New Zealand Government Railways.

ENGINEER & RAILWAY STAFF CORPS

The following appointments were gazetted recently under the heading of Territorial Army—Royal Engineers: Engineer & Railway Staff Corps:—

Lt.-Colonel W. H. S. Tripp, M.C., T.D., M.I.C.E., M.I.Mech.E., resigns his commission, May 26, 1951, retaining the rank of Lt.-Colonel.

Lt.-Colonel J. Briggs, O.B.E., M.I.C.E., resigns his commission, May 26, 1951, retaining the rank of Lt.-Colonel.

Mr. Walter Woodbine Parish and Major-General A. E. Davidson have retired from the board of the Vulcan Foundry Limited, and Viscount Bridgeman has been elected a Director.

Mr. A. A. Golding, Manager of the Post Office (London) Railway, has retired and has been succeeded by Mr. W. D. McLaren.

Mr. A. S. Bramworth, Assistant Works Manager (New Works), York, North Eastern Region, has been appointed Assistant Carriage & Wagon Works Manager, York.

A paragraph, which appeared in our June 8 issue, showing the composition of the Council of the Institution of Civil Engineers, should have stated that the Council will be for the session 1951-52 and will take office in November.

Mr. R. H. R. Loughborough has been elected to the board of directors of the American Car & Foundry Company.

The London Transport Executive has announced the appointment of Mr. E. P. Lumley as Divisional Depot Engineer "B" in the Running Division of the Department of the Chief Mechanical Engineer (Railways).

Mr. Frank Simpson, Manager of the Newfoundland District, Canadian National Railways, who, as recorded in our May 18 issue, has been appointed Chief of Car Service for the system, was born in Aberdeen, Scotland, in 1890. He started his railway career with the North British Railway in 1906 and on moving to Canada in 1911 entered the service of the Grand Trunk Pacific Railway, now part of the Canadian National system. He advanced to various positions in the engineering, valuation and transportation branches of the Operating Department and in 1938 was made Assistant to Vice-President of Operation at Montreal. Mr. Simpson was appointed Manager of the Newfoundland District when the Newfoundland Railway was taken over by the C.N.R. in 1949.

British Transport Commission Statistics (Period No. 4)

Summary of the principal statistics for the four-week period ending April 22

STAFF

	B.T.C. Head Office	British Railways	London Transport	British Road Services (Road Haulage)	Road Passenger (Provincial & Scottish)	Hotels & Catering	Ships & Marine	Inland Waterways	Docks, Harbours, Wharves	Railway Clearing House	Commer- cial Adver- tisement	Legal	Films	Total
Number ...	246	598,879	99,035	77,264	59,674	18,026	6,254	4,876	19,983	655	206	286	34	885,418
Inc. or dec.	-4	+1,211	+73	+683	+86	+439	-4	-10	+68	-10	-1	+3	+1	+2,535

LONDON TRANSPORT

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

	Four weeks (Period No. 4)		Aggregate for 16 weeks	
	1951	1950	1951	1950
	£000	£000	£000	£000
British Railways—				
Passengers	6,825	8,490	25,757	27,359
Parcels, etc., by passenger train	2,456	2,170	9,568	8,552
Merchandise	7,298	5,822	28,523	24,925
Minerals	2,653	2,259	10,522	9,368
Coal & coke	6,908	5,187	26,920	21,996
Livestock	91	95	298	375
	26,231	24,023	101,588	92,575
British Railways—				
C. & D. & other road services	789	640	3,007	2,676
Ships and Vessels	886	651	2,415	2,168
London Transport—				
Railways	1,224	1,099	4,823	4,431
Buses & coaches	2,506	2,354	9,517	9,191
Trams & trolleybuses	762	817	2,971	3,242
	4,492	4,270	17,311	16,864
British Road Services—				
Freight charges, etc.	5,853	4,259	22,581	17,343
Road Passenger Transport	3,008	2,764	11,095	10,078
Docks, Harbours & Wharves	986	872	3,690	3,429
Inland Waterways	135	114	503	458
Hotels & Catering	1,199	1,078	4,390	4,082

	Passenger journeys	Inc. or dec. per cent. over 1950	Car miles	Inc. or dec. per cent. over 1950
Railways	000		000	
Buses & coaches	48,277	+0.4	17,420	0.3
Trams & trolleybuses	217,840	+5.1	25,096	+5.6
	75,949	14.4	7,663	-9.8
Total	342,066	-0.6	50,179	+0.9

INLAND WATERWAYS

Tonnage of traffic and ton miles

	Tonnage	Inc. or dec. per cent. over 1950	Ton miles	Inc. or dec. per cent. over 1950
Coal, coke, patent fuel & peat	000		000	
Liquids in bulk	439	+1.5	6,285	-1.7
General merchandise	165	+24.2	3,982	+30.5
	332	+15.2	5,126	+12.1
Total	936	+9.7	15,393	+9.8

BRITISH RAILWAYS

Rolling Stock Position

	Operating stock	Number under repair	Available operating stock	Serviceable stock in 1950
Locomotives	19,505	3,283	15,573	15,746
Coaching vehicles	57,914	5,714	52,200	51,885
Freight wagons	1,109,203	73,707	1,035,496	1,018,638

BRITISH RAILWAYS

Passenger Journeys (Month of March, 1951)

Full fares	Monthly returns	Excursions, cheap day, etc.	Other descriptions	Workmen	Season tickets	Total	Inc. or dec. per cent. over 1950
6,164,000	10,062,000	18,305,000	3,955,000	18,082,000	19,346,000	75,914,000	+0.1

BRITISH RAILWAYS

Freight Tonnage Originating and Estimated Ton-Miles (Period No. 4)

	Minerals	Merchandise	Coal & coke	Livestock	Total	Inc. or dec. per cent. over 1950
Tons originating	000	000	000	000	000	
Ton-miles	4,574	4,165	13,177	64	21,980	+4.8
	398,704	559,945*	803,488	—	1,762,137	+5.7

* Includes livestock

BRITISH RAILWAYS (Period No. 4)

	Total steam coaching train-miles	Total electric coaching train-miles	Total freight train-miles	Freight train- miles per train engine-hour	Net ton-miles per total engine-hour	Locomotive coal consumption	
						Total tons	Lb. per engine-mile
1951	13,941,000	3,669,000	10,874,000	8.31	600	1,063,000	64.6
1950	14,293,000	3,672,000	10,436,000	8.54	598	1,037,000	63.7

Institution of Railway Signal Engineers

*Annual general meeting, presentations, and
Mr. S. Williams's presidential address*

The annual general meeting of the Institution of Railway Signal Engineers was held in London on March 9, 1951, with the retiring President, Mr. F. Horler, in the chair at the opening of the proceedings. After Mr. G. J. Dickin, Honorary General Secretary, had read the notice convening the meeting and the report of the auditors, Mr. Horler reviewed the main features of the Council's report for 1950, drawing special attention to the financial position, which was causing the Council some anxiety, and to membership figures. He dwelt on the large amount of voluntary work done by the officers and the various committees and their secretaries, by whose efforts a fine record of technical achievement for the past year had been built up.

Mr. Horler said that the support given to him had been most encouraging and the success of the meetings gratifying. The standard of papers read had been high, and the social aspect of the Institution's activities had been well maintained. Both the visit to Dublin, where they were cordially welcomed by the officers of *Córas Iompair Éireann*, and to the new signalling on the London-Shenfield line, were highly successful. The annual dinner had been equally enjoyable.

The signalling lectures at Manchester and York continued a form of work which had been one of the most important the Council had embarked on. It had also taken a keen interest in the progress of the Signal & Telegraph Technical Societies, and he had been privileged to visit them all and see for himself how well they were carried on. The membership of the Institution had grown, in spite of the rather strict conditions under which entry to it was now granted.

Mr. B. Reynolds, Honorary Treasurer, gave an informative review of the annual accounts and balance sheet, explaining the differences between them and those for 1949. The ordinary working account of the Institution would have shown a loss but for support obtained from the sale of lecture booklets. In common with several other bodies, the Institution was finding that rising costs, especially of printing, were proving a handicap in view of the fixed income from subscriptions, which had not been increased in proportion. The increase in the accumulated fund had not been as great as in the previous year.

Prizes for Papers

The report and accounts were formally adopted, after which Mr. Horler presented to Mr. H. W. Hadaway the prize for the best paper read before the Institution in 1950, "Improvements in Track Circuit Shunts (Injector Track Circuit)." The second prize, awarded to Mr. H. C. Towers for a paper "Signalling Developments on the Bombay Baroda & Central India Railway," could not be presented, but will be given when Mr. Towers is next in England.

Mr. Horler announced the result of the ballot for election of Council, as follows:—President, Mr. S. Williams; Vice-Presidents, Mr. T. S. Lascelles and Mr. T. Austin; Members of Council, Messrs. E. G. Brentnall, F. Burton, C. G. Derbyshire, F. B. Egginton, J. H. Fraser, J. C. Kubale, W. Owen, D. G. Shipp, J. F. H. Tyler, C. F. D. Venning, R. A. Green, F. Mann, N. Marshall, A. L. Mills, R. A. Powell, and M. Le Sueur. The Council would in due course co-

opt a number of past-Presidents. Messrs. C. F. Burton & Co were re-appointed auditors. After one or two questions had been raised concerning the method of Council election adopted, and the Institution's library collection, Mr. Horler invited Mr. S. Williams to take the chair, after which Mr. A. Moss moved and Mr. R. Dell seconded a cordial vote of thanks to Mr. Horler for his services as President during the preceding session.

Presidential Address

Mr. S. Williams then delivered his presidential address (a telegram congratulating him on his election was received from Mr. E. G. Brentnall, Assistant Signal & Telecommunications Engineer, London Midland Region, who was attending a meeting of the International Union of Railways).

The address referred to a number of matters of special interest to signal engineers at the present time. Nationalisation would have to bring standardisation of principles, practice, and equipment, even possibly of administration, with suitable adjustments, but it ought never to trap them into standardisation of thought and outlook. Much of the value of the Institution was in forming a common ground where manufacturers and users of apparatus could meet and exchange comment and criticism. Their railway representatives were now seen travelling in many countries in search of information, and standardisation would not mean stagnation in the signalling profession.

It was due as much to initiative and original thought as to a sense of tradition that difficulty arose in arriving at decisions on methods and designs to be commonly applied. Much remained to be done to improve existing telecommunications systems and carry out developments when finances permitted. Rapid communication was essential to the efficient running of a railway and the present telegraph network was not carrying the traffic of which it was capable. Telegrams could often be used, sent over such circuits, to relieve the telephone lines. The extension of the teleprinter system to other than point-to-point links and the provision of dialling facilities were under review, with a scheme for more teleprinter exchanges. The rapid distribution of messages to their addressees was to be further facilitated.

Present trunk telephone systems were overloaded and the problem was to provide additional channels, but there were factors at present limiting what could be done with carrier equipment. The more effective use of such extra channels was necessary to avoid waste of valuable circuit time and the extension of voice frequency methods on certain lines was worth investigating. Message time lost by line faults increased with carrier-type circuits and standards of maintenance would call for more attention, as would the standardisation of railway switchboards. The handling of public telephone messages, especially at holiday times, was being improved by a system of storage of incoming calls; one London terminus was already equipped. Loudspeaker apparatus at stations was being studied with a view to securing uniformity of technique, and high-frequency systems of communication were being experimented with. All these matters raised the question of attracting and keeping the highly-trained

staff needed to maintain complex equipment at the peak of efficiency.

There was scope for original thought on the signalling side of their work. Much standardising was being undertaken, through certain committees, but full-time representation on them might be needed to obtain satisfying results. Endeavours were being made in the meantime to apply the best of existing designs and avoid all uneconomic scrapping. A field for this class of work was the oil signal lamp, which would have to remain with them for many years, and it was desirable to adopt a pattern able to be produced at reasonable cost in numbers and fixed to the existing signals. Oil consumption had been overstressed at the expense of satisfactory illumination.

There was also the vexed question of the regular care of the lamps. It was for serious consideration whether the Signal Engineer should not be wholly responsible for them. The railways now had their own laboratory facilities for investigating this and many other problems. Standardisation of level crossing equipment and items involving drop stampings needed to be dealt with at an early stage.

An important part of Mr. Williams's address concerned the possible application of reversible line working at termini and bottlenecks in open country where conditions prevented multiplication of tracks. Such working had been applied successfully in other countries, but was coupled invariably with local re-construction and formed part of a fundamental design. There had been only three or four examples here; and at least one case was for emergency use only.

Unified Control

Most American applications depended for success on a unified control over a considerable stretch of line with remote operation of high-speed crossings, and so on; nevertheless the subject deserved consideration by our operating and signalling officers in relation to our own special circumstances. The application of the principle to open country locations would enable a superior class train to overtake one of lower class running in the same direction without check, subject to maintaining marginal clearances.

Finally, Mr. Williams dwelt on the importance of the signal engineer making frequent observational runs from the footplate of expresses. Only so could he assess accurately the success or otherwise which he had achieved in giving the drivers the necessary indications in all weathers throughout the 24 hours. However well he might know his railway on paper, repeated trips were necessary to identify any defect, particularly at night or during fog or snow. Observation under the worst conditions was essential if a satisfactory standard was to be attained.

At the conclusion of the address, for which a hearty vote of thanks was proposed by Mr. J. C. Kubale, seconded by Mr. T. S. Lascelles, two films were shown by the President. One covered a series of views of signals as seen from the footplate of the 10 a.m. express from Euston to Glasgow, between London and Carlisle, intended to show selected locations of both semaphore and colour-light type signals. The other was the B.B.C. film of the London-Brighton run, covered in a film time of 5 minutes, equal to about 700 m.p.h. as seen from the cab of an electric train.

International Union of Railways

Proceedings of the annual meeting held at Eastbourne of the five committees

The five committees of the International Union of Railways held their annual meetings in Eastbourne during the fortnight ended June 8, as mentioned in our June 1 issue. The proceedings were opened on May 28 by Mr. John Elliot, Chairman of the Railway Executive, who at a plenary session welcomed delegates on behalf of British Railways. The other member railway administrations represented were those of Austria, Belgium, Denmark, France, Germany (Western), Italy, Yugoslavia, the Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland.

Work of the Committees

First Committee (Passenger Traffic): In the absence through indisposition of Mr. R. H. Hacker, Chief Officer (Continental), the Railway Executive, Mr. R. E. Sinfield, Continental Superintendent, British Railways (Southern Region), acted as Chairman. The committee examined various commercial questions, including travel agents' commissions on international tickets, the adaptation from a commercial viewpoint of passenger transport to new circumstances, and (in conjunction with the Second Committee) competition and co-operation between rail and road for internal and international passenger and goods traffic.

Second Committee (Goods Traffic): Under the chairmanship of M. Dirlwanger (Swiss Federal Railways) the committee discussed *inter alia* the carriage of articles of exceptional dimensions and tarification of containers in international traffic; also (in conjunction with the Fourth Committee) the advantages and disadvantages of covered and open wagons, methods of palletisation in international traffic and a type of standard pallet, specially fitted containers, and means of increasing average transit speeds.

Third Committee (Finance, Accountancy, & Statistics): With M. Desorgher (Belgian National Railways) presiding, questions examined by the committee included standardisation of railway statistics, methods of calculating costs, regulations for the railway Central Clearing House, Brussels (B.C.C.), accountancy regulations for international traffic, and exchange risks in cases of international currency manipulations.

Fourth Committee (Operating): The Chairman of the committee was Signor Palmieri (Italian State Railways). Among the subjects discussed were the sorting and routing of complete wagon loads, comparison of operating methods of member railways of the I.U.R., analysis of the movements of empty stock in international traffic, and methods of operating palletised traffic; also (in conjunction with the Fifth Committee), increased capacity of permanent way installations by the use of safety devices.

Fifth Committee (Technical Questions): The work of the committee, under the chairmanship of M. Parmantier (French National Railways), was performed by the several sections (electricity, rolling stock, and permanent way) and its sub-committees. The agenda of the electricity section included questions of common interest to member railways relating to electrical equipment of rolling stock, and participation in the work of the International Joint Standing Committee for Electric Traction Equipment (C.M.T.), rules for the construction of electric railcars interavailable for

working over lines electrified at 1,500 or 3,000 V. d.c., and definition of the power categories of tractive stock (steam, electric, and diesel). Subjects discussed by the rolling-stock section included interchangeability of spare parts for wagons in international services, standardisation of wagon parts, insulated and refrigerator wagons, and conditions (loading-gauge, brake, and so on) governing the running of Continental wagons in Britain. The permanent way section examined methods of cleaning ballast.

In addition to the meetings of the five committees, delegates met to discuss the work of the C.I.C.E. (*Centre d'Information des Chemins de fer Européens*), set up some months ago, with its headquarters in Rome, under the aegis of the I.U.R. to disseminate information on behalf of member railways and undertake publicity on behalf of the railways generally as a means of transport.

Mr. John Elliot was host at a luncheon given by the Railway Executive on June 6.

Addressing the guests, Mr. Elliot congratulated the delegates on the smooth progress of their deliberations and proposed the health of the Continental delegates coupled with that of the Mayor of Eastbourne.

M. Tuja, General Secretary of the I.U.R., replying, thanked Mr. Elliot and British Railways for what they had done to make their meetings in England so pleasant. In particular he mentioned Mr. Sinfield, Mr. L. H. K. Neil, Continental Traffic Manager, Eastern & North Eastern Regions, and Mr. H. J. Bourn, Assistant Continental Superintendent, Southern Region, for the excellent arrangements which had been made. Others present at the luncheon were:

Great Britain: Messrs. R. J. S. Croft, Mayor of Eastbourne; David Blee, Member, the Railway Executive; G. Wynne Davies, Publicity Officer, the Railway Executive; R. E. Sinfield, L. H. K. Neil, and H. J. Bourn; and B. W. C. Cooke, Editor of *The Railway Gazette*.

Austria: Herr Brüll; **Belgium:** M. Van Cauwenberge; **Denmark:** M. Jyrdal; **France:** MM. Dargeou, Marois, and Rousseau; **Germany (Western):** Herr Hüger, Herr Maier; **Italy:** Signor Laloni; **Yugoslavia:** M. Ilić; **Netherlands:** Messrs. Wansink and Wouters; **Norway:** M. Stokke; **Portugal:** Senhor Faria-Lapa; **Spain:** Señor Garnica, Señor Imedio; **Sweden:** M. Berger; **Switzerland:** MM. Cottier, Dirlwanger, and Fallet.

Golden Jubilee of Railway Convalescent Homes

Lord Hurcomb on the growth and importance of the movement

Friday of last week was the 50th anniversary of the opening of the first of the Railway Convalescent Homes, namely, that at Herne Bay, which was opened by Sir Henry Campbell-Bannerman on June 8, 1901. The trustees felt that the present times were not favourable for extensive celebrations, but that the occasion of the completion of 50 years of service to the railway and other transport workers of this country, should not be allowed to pass unnoticed. Arrangements were made, therefore, for the principal officers of British Railways and London Transport particularly associated with staff and welfare matters, together with the medical officers, to inspect the Herne Bay and Margate Homes with the members of the board of trustees and of the L.M.S. Fund Executive.

Tour of Inspection

The party first inspected the Herne Bay Home, where the proceedings were presided over by Mr. A. L. Crewe, Chairman of the Board of Trustees. He welcomed the guests, and in particular Lord Hurcomb, Chairman of the British Transport Commission and President of the Homes, and General Sir Daryl G. Watson, a Member of the Railway Executive. Lord Latham, the immediate Past-President, was unable to attend.

Lord Hurcomb spoke briefly of the early history of the movement, and of the prominent part played by the late John Edward Nichols, Cashier of the South Eastern & Chatham Railway, whom he described as a man of great foresight and deep humanity. He was glad that it was possible for Mrs. Durcure (his daughter) to be present that day. Through his activities, and the generosity of J. Passmore Edwards, three acres of land at Herne Bay were conveyed on April 5, 1899, to a body of ten railwaymen, drawn from all grades of the

service and from various companies, on which to build a convalescent home for railway workers.

In its first year of service, the Herne Bay Home took 131 patients; the grand total was now 41,520. Moreover, other Homes had been opened from time to time in various parts of the country, and to date the combined Homes had received a total of 203,196 patients. The initial arrangement for members to pay a 1d. a week had been extended to include the member's wife, but otherwise remained unchanged until 1945, when it became necessary to increase the charge to 1d. a week. With further rising costs, it was now 2d. a week, which Lord Hurcomb regarded as a very good investment. There were now ten Homes, and he assured his hearers of the warm interest of the B.T.C. in the continuance and extension of the movement.

After a short service of rededication conducted by the Rev. E. Roberts, Vicar of Herne Bay, the party went by coach to Margate and inspected the Margate Home, which was opened on October 29, 1927.

CHEAPER HOLIDAYS NEEDED.—Sir Alexander Maxwell, Chairman of the British Travel & Holidays Association, addressing the summer meeting of the Association of Health & Pleasure Resorts at Southport recently, said that this year there would be a further development of the tendency for people to look for new ways in which to spend their holiday, anything indeed that would reduce the cost and at the same time provide some sort of holiday. It was a development with which they would have to contend more and more in the future unless some solution could be found to the problem. He suggested a reduction in rail fares to attract holiday traffic outside the peak season and the promotion of holidays at all-in rates.

Staff & Labour Matters

Railway "Efficiency Committee"

The Special Joint Committee ("Efficiency Committee") of representatives of the Railway Executive and of the three railway trades unions, set up under the agreement of February 23 to consider manpower and other economies and methods of increasing efficiency generally (as recorded in our March 2 issue) has reached agreement on the following points:—

Calling-up: The practice of employing callers-up to call footplate staff and guards for rostered turns of duty should be discontinued not later than July 30, 1951. Callers-up will be employed where required to advise men if their rostered times of signing on duty are changed after having booked off duty from the preceding turn. Everything possible will be done to prevent hardship for staff displaced as a result of the alteration in calling arrangements. Partially-disabled men at present engaged on calling duties at depots at which redundancy arises will be given priority over able-bodied men, irrespective of seniority, for filling posts necessary for advising trainmen of altered turns. Any able-bodied men displaced will be dealt with in accordance with agreed redundancy procedure.

Lodging Turns: An understanding has been reached which will reduce wastage of manpower and result in improved transits. This is, however, a complicated problem which cannot be quickly resolved in its entirety.

Van guards: Steps are to be taken to give effect to the formula for van guard employment in London previously agreed with the N.U.R., and 100 guards are immediately affected. Further savings of van guards in London will be made by application of the formula as schemes for re-organisation of cartage work progress. The Committee has been supplied with particulars of guards and non-statutory attendants now employed in the provinces, the withdrawal of whom is proposed by the Railway Executive. These proposals are now being examined.

Cartage of Parcels in London: An examination is being held jointly with staff representatives into the difficulties encountered in providing a more secure and efficient cartage service for parcels between London stations.

Railway Wages

The General Secretary of the N.U.R., Mr. J. B. Figgins, writing in *The Railway Review* of June 8, suggests that increased wages are the only solution to the difficulty of attracting recruits to the railway service. He claims that the recently agreed lodging and transfer allowances will not suffice. "I trust that the railway trade unions," says Mr. Figgins, "will learn from experience and appreciate the urgent necessity of agreeing to submit a common application for wage and salary advances, so that the press will no longer be able to refer to the division between the unions and cause confusion in the mind of the public regarding a justifiable and reasonable claim submitted on behalf of all grades."

This statement follows on the demands of members of the T.S.S.A. for increased pay and improved conditions of service made at their annual conference, reported in our last week's issue. Others who seem to be joining in the new round of wage claims include electricians, and the engineers are expected to put forward demands for a further increase of £1 a week.

Mr. Figgins has told N.U.R. members that the concessions obtained by direct negotiations with the Railway Executive last February after rejection of the court of inquiry recommendations, were too late to arrest the decline in staff. Since then it is claimed that wage concessions to workers in outside industry have increased still further the gap between railway wages and those in other industries.

Parliamentary Notes

British Railways Inquiry

The following motion has been handed in for discussion in the House of Commons at an early date: "That this House notes with concern the failure of British Railways to implement their promise to begin a summer train service on June 18; deplores the consequent inconvenience caused to holiday resorts and the public and the waste of money in advertising services which are not forthcoming, and calls upon H.M. Government to institute an immediate inquiry into the causes of this failure and the administration of British Railways."

The supporters of the motion are Messrs. Geoffrey Wilson (Truro), W. F. Deedes (Ashford), S. J. McAdden (East Southend), R. F. Crouch (North Dorset), Sir John Mellor (Sutton Coldfield), Captain Sir Peter Macdonald (Isle of Wight), Mr. J. Baker White (Canterbury), Major E. M. Cooper-Key (Hastings), Major Charles Taylor (Eastbourne), and Mr. Geoffrey Hirst (Shipley), all Conservatives.

Summer Train Services

The following motion has also been handed in for discussion in the Commons: "That this House views with concern the postponement of the projected summer train service, and requests H.M. Government, in view of the importance of holidays to all sections of the community, to do everything possible to ensure an adequate service to holiday resorts at the earliest moment."

The supporters of the motion are Messrs. Edward Evans (Lowestoft—Lab.), W. Teeling (Pavilion, Brighton—C.), E. G. Gooch (North Norfolk—Lab.), E. Carson (Isle of Thanet—C.), F. H. Hayman (Falmouth & Camborne—Lab.), Sir Ian Fraser (Morecambe & Lonsdale—C.), Mr. J. Baker White (Canterbury—C.), Major Charles Taylor (Eastbourne—C.), and Sir Harold Roper (North Cornwall—C.).

British Transport Commission Bill

The British Transport Commission Bill was given a second reading in the House of Lords on May 29.

Petitions against the bill have been deposited by a number of local authorities.

The following have been elected by the House of Lords to form the Select Committee for the consideration of the British Transport Commission Bill: Lord Merthyr, Chairman; Earl of Hardwicke; Lord Hampton; Lord Dorchester; and Lord Douglas of Barloch. The Committee will meet on June 26.

CLOSING OF STATIONS: EASTERN REGION.—The Eastern Region of British Railways announces that as from July 2 Bingham Road Station will be closed. Facilities for passengers and parcels will continue to be available at the station.

Contracts & Tenders

The Pakistan Government has recently placed the following contract with the American Locomotive Company:—

Nine 1,600 h.p. diesel-electric shunting locomotives.

Fourteen 1,600 h.p. diesel-electric passenger locomotives.

S. A. La Brugeoise et Nicaise & Delcuve, Belgium, has received from the New South Wales Government Railways, an order for ten ventilated covered wagons and for 80 bodies for ordinary covered wagons.

Waggonfabrik Talbot, A.G., Aachen, is delivering 20 large four-wheel hopper cars to the Dutch State Mines in Limburg, Holland.

The following contracts have recently been placed by British Railways, London Midland Region:—

Barford Joinery Mills Limited, Birmingham: reconstruction of the roof and resurfacing of the deck in the empties shed at Birmingham Lawley Street Goods Station.

Industrial Engineering Limited, London, W.1.: temporary repairs, with Mastic to part of the roof glazing of Carlisle Station.

British Challenge Glazing Company, London, E.5: patent roof glazing repairs to the sawmill, toolroom and accumulator house at Wolverton Carriage & Wagon Works.

McIntyre & Sons Ltd., Liverpool: supply and erection of steelwork for the re-roofing of the special road vehicle shop and iron stores at Earlestown Wagon Shop.

The Special Register Information Service of the Board of Trade Commercial Relations & Exports Department recently stated that the United Kingdom Senior Trade Commissioner in Pakistan has reported that the Government of Pakistan, Ministry of Communications (Railway Division), has issued a call for tenders for the supply of 200 broad gauge (5 ft. 6 in.) dismantled covered cattle wagons. The wagons are to be "CMR" type, complete with underframe, vacuum brake fittings, drawgear, buffing gear and painted to P.R.S. Specification No. R-6-49 and the particular specifications and drawings referred to therein. All these wagons are to be delivered dismantled to N.W.R., F.O.R. Karachi.

Copies of the tender documents and particular specifications can be obtained from the Office of the Director General, Railways, Railway Division, Ministry of Communications, on payment of Rs. 40 for each set. Tenders must reach the Office of the Director, Mechanical Engineering & Stores, Railway Division, Ministry of Communications, Government of Pakistan, Karachi, by 11 a.m. on July 20.

INDICATING RELAY FOR POWER CIRCUITS.—A new relay has been introduced by the General Electric Co. Ltd. to permit rapid location of a power circuit or piece of equipment affected by a fault. The relay, on being energised by the operation of the normal protective equipment when a fault occurs, displays a coloured flag in a window at the front of the assembly. A simple modification enables the instrument to be adapted so as to release either when its coil is de-energised, or only when the flag indicator has been re-set by hand. The relays may be mounted in groups and labelled individually according to the circuits, apparatus, or class of fault to which they refer.

Notes and News

Junior Assistant Sectional Engineer Required.—A junior assistant sectional or sectional engineer is required for a British railway company operating in Chile and Bolivia. See Official Notices on page 683.

Peruvian Corporation Limited.—Applications are invited for the posts of accountants, between 25 and 30 years of age, required for British-owned railways in South America. See Official Notices on page 683.

Potteries Motor Traction Co. Ltd. Acquisition.—The Potteries Motor Traction Co. Ltd. announces that it has acquired the share capital of two more companies operating in and around Stoke-on-Trent. They are Stoke-on-Trent Motors Limited and Thos. Tilstone & Son Ltd.

Norwegian Workshops Destroyed by Fire.—It is reported that the Norwegian State Railways workshops in Trondheim were burned to the ground on June 6. The total loss was estimated at Kr. 6,000,000 (£300,000 sterling). The fire started in the engine room and was thought to have been caused by sparks from an exhaust pipe near the roof.

Scottish Region Special Excursion Traffic.—Saturday, June 9, proved one of the heaviest days of the season in the Scottish Region for works parties and other special excursions at stations in Glasgow, Lanarkshire, and the West of Scotland. No fewer than 65 special trains carried 22,000 adults and 25,000 children to Clyde and Ayrshire coast resorts and to other parts of Scotland.

Canadian Pacific Dividend.—The directors of the Canadian Pacific Railway Company have declared an interim dividend of 75 cents per \$25 ordinary stock on account of 1951. This is equivalent to 3 per cent. Holders of ordinary stock are informed that 25 cents of the dividend was attributable to railway earnings and the remaining 50 cents to income from other sources. A year ago the interim of 50 cents per ordinary stock was attributable solely to income from other sources.

Pullman Incorporated Annual Report.—The report of Pullman Incorporated for 1950 shows consolidated net income of \$9,842,262 or \$4.49 per share, compared with \$5,496,834, or \$2.42 per share in 1949. Dividends totalling \$4 per share were paid. The number of freight wagons ordered in 1950 was 39,946, and of passenger coaches, 76; those delivered were 8,830 and 501 respectively. The number of freight wagons on order at the close of the year under review was 31,848, and, of passenger coaches, 76.

Lime Street Station Improvement Scheme.—Liverpool is to have a modernised concourse at Lime Street Station complete with concealed lighting, glass-fronted booking office, modern refreshment room, shopping facilities, and so on. The new face of the concourse will be finished in blue-grey tiles. All the present structures on the existing concourse will be removed and the three existing booking offices concentrated in a central office. Enquiry and reservation offices will be remodelled and the heating and lighting of the station modernised. Telephone kiosks will be grouped at one point and toilets will be built beneath ground level. The alterations have been planned to give more conveni-

ent access and better circulation in the concourse. New standard direction signs will be erected, and a new departure indicator opposite the booking office will give quickly read details of trains. The London Midland Region will spend over £50,000 on this scheme.

One Class Travel in Hungary.—It is reported that the Hungarian State Railways abolished the distinction of first, second, and third classes on May 19. Three classes are being maintained only on international trains.

United States Railways Income.—According to the Association of American Railroads, the major U.S.A. railways had an estimated net income during April of \$45,000,000, an increase of \$5,000,000 on the same month in 1950. For the four months ended April, the carriers had an estimated net income of \$147,000,000, against \$95,000,000 in the same period in 1950.

Railway Staff Recruitment Posters.—With the object of encouraging young men to join various branches of the railway service British Railways have issued a series of three-colour posters calling attention to the vacancies which now exist. The illustrations show locomotive drivers and firemen and permanent way men at work. These posters were prepared by the Public Relations & Publicity Department of the London Midland Region and are being displayed in all Regions.

Central Argentine Railway Meeting.—A general meeting of the members of the Central Argentine Railway Limited will be held at River Plate House, 12-13, South Place, E.C.2, on June 28, at 11.20 a.m., for the purpose of having an account laid before the meeting showing the manner in which the winding up has been conducted during the third year of liquidation ended April 1, 1951, and of hearing any explanations that may be given by the liquidators; and for fixing the remuneration of the liquidators for the period covered by the account.

G.N.R.(I.) Discussions Continue.—The Northern Ireland Minister of Finance has stated that he hoped—although perhaps it might be too much to hope—that the shareholders of the G.N.R.(I.) would be satisfied with the final settlement when it came. Discussions were still being continued with the company to ensure that the railway services might continue while the general question was being further examined. Certain correspondence had taken place with the company, and he believed that the outcome would prove satisfactory to all concerned. Cross-border traffic had been a considerable complication in the negotiations and another was the General Election in Eire.

Guest Keen & Nettlefolds Limited.—The accounts of Guest Keen & Nettlefolds Limited for the year ended December 30, 1950, show that group surplus on trading was £7,682,098, against £6,237,465 for 1949, representing an increase of £1,444,633. Dividends from scheduled subsidiaries totalled £679,413, compared with £504,643, and from associated companies £115,316 as in 1949. Other income amounted to £85,462, against £89,431, making a total of £8,562,289, against £6,946,855 in the previous year. An amount of £18,537,774 in Iron & Steel stock has been received in respect of subsidiaries and associated companies transferred to public ownership on

February 15. Expenditure on development schemes at home and abroad has already received sanction to the extent of £12,000,000, and the present pronounced inflationary tendency will inevitably cause an increase in this figure. Total assets stand at £55,481,446 against £52,090,360 in 1949.

Scammell Lorries Limited.—The net profit of Scammell Lorries Limited amounted to £112,831 in 1950 after payment of tax. This compares with £96,477 last year. The dividend recommended is 10 per cent., against 12½ per cent., and the carry-forward is £51,137. Taxes absorbed £139,955 in 1950.

Rolling Stock Manufacture in Mexico.—A sum of 40,000,000 pesos (about \$4,500,000) is to be spent on the construction and equipment of a plant for coach and wagon construction in Mexico. A decision is to be made at once on the site. Reports that a loan has been sought from the United States, to finance the building and equipment, have not been verified officially.

Indian Strike Threat.—It is reported from New Delhi that talks with the Indian Government to avert a threatened strike of nearly 1,000,000 railway workers have failed. The strike ballot now being held all over the country by the All-India Railwaymen's Federation will continue. The results, to be announced on June 20, will be considered by the General Council of the Federation on July 6.

British Railways Diesel-Electric Locomotive Trials.—The down "Royal Scot" left Euston at 10 a.m. on June 6 hauled for the first time by a single diesel-electric locomotive. Hitherto, the "Royal Scot" has been worked by two diesel-electric locomotives—Nos. 10000 and 10001—and if the present trials show that one unit is able to handle the load adequately both the up and down expresses will be worked in this way.

Mobile Railway Inquiry Office for North Wales.—During this summer holiday makers at camps in North Wales will have a rail inquiry and booking office brought to them so that however remote they are from the railway they will be able to find out all they want to know about travel. This mobile bureau of the London Midland Region of British Railways will call at a regular time each week at all holiday camps in North Wales. Campers will be able to book rail tickets for all destinations.

B.E.T. Omnibus Services Limited.—The report for the year ended March 31, 1951, of B.E.T. Omnibus Services Limited shows a profit of £401,760, which, added to £122,220 brought forward, makes a total of £523,980. After transference to general reserve of £150,000, £373,980 remains available for appropriation. The directors recommend that it be applied as dividends of 10 per cent. on the cumulative preference shares and 12 per cent. on the ordinary shares. There will remain a balance of £128,605 to be carried forward.

Scrap Campaign Films.—The British Iron & Steel Federation has made two films, one a cartoon entitled "River of Steel," on steel production, and the other, "Speed the Scrap," intended for showing to the industry and municipalities. The steel scrap campaign, launched in January, is planned to continue into 1952, and the

OFFICIAL NOTICES

PERUVIAN CORPORATION LIMITED.—Required for British-owned Railways in South America. Accountants aged 25-30. Knowledge of railway accountancy and of Spanish advantageous; experience of staff management an advantage; three years' contract, renewable; liberal leave, passage paid Salary according to experience.—Apply to the Secretary, PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

JUNIOR Assistant Sectional Engineer or Sectional Engineer required for British Railway Company operating Chile and Bolivia. Candidates should have passed Sections (a) and (b) of Institute of Civil Engineers examination and have had some experience in maintenance and construction of track work, bridges and buildings. Commencing salary £600/£800 p.a., according to qualifications and experience. Free quarters, passages, allowances, etc., provided. Applications with full particulars of qualifications and experience and copies of any testimonials held to be sent to Box 4985, c/o CHARLES BARKER & SONS LTD., 31, Budge Row, London, E.C.4.

WE buy used or unserviceable Steel Files at good prices, in lots of 2 cwt. or more.—THOS. W. WARD LIMITED, T.S. Dept., Albion Works, Sheffield.

MECHANICAL ENGINEER, M.I.Loco.E., 19 years experience British railways, Latin America, steam and diesel traction, speaks Spanish and French, available for technical and/or executive position in any country.—Apply Box 95, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE PERUVIAN CORPORATION LIMITED.—Assistant to Chief of Traction, Peruvian Railways; age 26/35. Qualifications: Apprenticeship with steam locomotive builders or main-line railway workshops, main experience with a locomotive running department. Knowledge of diesel power an asset. Higher National Certificate for Mechanical Engineering or graduate of Institute of Mechanical Engineers. A knowledge of Spanish an advantage. Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

JUNIOR Traffic Officials with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with international traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RAILWAY SIGNALLING AND COMMUNICATIONS INSTALLATION AND MAINTENANCE. A practical guide, especially intended to help Signal Inspectors, Installers, Fitters, Linesmen, Draughtsmen, and all concerned with installing and maintaining Signal, Telegraph, and Telephone Equipment. 416 pp. Many illustrations. Cloth. 8s. By post 8s. 6d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

indications are that the 10,000 tons a week looked for in addition to the 157,500 a week from home scrap in the absence of a special drive, are being contributed. So far, the greatest contribution has come from steelworks and allied sources; it is hoped that other sources, particularly from farms and households, will be progressively tapped.

Increase in Nickel Prices.—The International Nickel Co. of Canada Ltd., and its associated company, the Mond Nickel Co. Ltd., announce that, as a result of the considerable and continued rise in costs, their prices for nickel have been increased as from June 1. The Mond Nickel Co. Ltd. is raising its price for refined nickel in the United Kingdom to £454 a ton delivered at works.

Turner & Newall Limited.—The directors of Turner & Newall Limited decided at a recent meeting to declare an interim dividend for the year ending September 30, 1951, on the issued ordinary stock at 5 per cent. actual, less income tax. The rate is being increased to reduce the disparity between the interim and final dividends on the ordinary stock.

French Railways Tourist Tickets.—The French National Railways are issuing, as an experiment, tourist tickets, available two months, for return or circular journeys in France with 20 per cent. reduction on ordinary fares for return or circular journeys of at least 1,500 km., and 30 per cent. reduction on ordinary fares for return or circular journeys of at least 2,000 km. (return included). They can be used for return transit journeys across France provided the holder spends at least five days in France on the outward journey, and for any itinerary, provided it brings the passenger back to his starting point. Passengers from outside France may enter by one port or frontier station and leave by another.

Mr. John Elliot Visits Scotland.—Mr. John Elliot, Chairman of the Railway Executive, this week has paid a three-day visit to Scotland in the course of which he met civic and industrial leaders in Glasgow and Edinburgh, inspected various railway lines and installations, and held discussions with officers of the Scottish Region of British Railways. Accompanied by three other members of the Railway Executive, Mr. V. M. Barrington-Ward, Mr. David Blee, and Mr. J. C. L. Train, Mr. Elliot arrived in Glasgow on Monday morning. In company with Mr. T. F. Cameron, Chief Regional Officer, the party toured the Aberfoyle branch line, later inspecting

Clyde shipping services. Mr. Elliot concluded his tour on June 13 and on the return journey from Edinburgh to Kings Cross took the opportunity of inspecting the new engineering works carried out on the East Coast main line as repairs to the flood damage sustained in 1948.

British Railways Coal and Steel Carrying.—During the weekend ended June 11 British Railways cleared 234,700 tons of coal from deep-mined pits and open-cast sites; this makes a total of 3,091,710 tons for the week. The latest figures for iron and steel show that 203,036 tons were conveyed during the week ended June 2 from the principal steelworks.

Permanent Way Institution, London Section.—The London Section of the Permanent Way Institution is visiting railway installations and other features at York during the week-end June 30-July 1. The party will leave Kings Cross at about 9.40 a.m. on June 30, and after lunch will visit the Railway Museum, Minster, and Castle Museum. For members staying in York the following day the York Section is making arrangements for a meeting or visit on the Saturday evening. On July 1 there will be a visit to York Station signal-box and a river trip to Bishopthorpe, and members will subsequently return to London.

Level Crossing Accident in Brazil.—Fifty-one persons are known to have been killed and more than 100 injured when an electric suburban train travelling at high speed ran into a petrol tank lorry which had stalled on a level crossing at Novaiguassu, Central Railway of Brazil, on the outskirts of Rio de Janeiro on June 7. An explosion, which was heard several miles away, brought down the overhead cables and uprooted a section of the lines, disrupting traffic into Rio; flaming petrol was sprayed over a wide area. The train of six coaches was crowded, mostly with workmen. All the passengers in the first coach are reported to have been killed. Flames spread rapidly to other coaches.

Birmingham & Midland Motor Omnibus Co. Ltd.—The report of the Birmingham & Midland Motor Omnibus Co. Ltd. for the year ended October 31, 1950, shows a balance representing the net profit of the company, including the results of its subsidiary companies, as £609,171, compared with £850,692 for the previous year. After addition of the balance brought forward there is a total of £987,497. The total available for distribution is £612,497, and the directors recommend that it should be applied as dividend on the 8 per cent.

cumulative preference shares, and a dividend of 25 per cent. on the ordinary shares. A balance of £376,797 will be carried forward.

British Timken Limited.—The directors of British Timken Limited propose a dividend of 20 per cent., less tax, for 1950, against 15 per cent. last year. The group profit of £295,671 compares with £313,300 after allowing for taxation of £419,007. General reserve receives £200,000, leaving the parent company to carry forward £108,571, as compared with £113,247 brought in.

Permutit Co. Ltd.: Financial Results.—The Permutit Co. Ltd., makers of water softening plant, recommend a dividend of 17½ per cent. for 1950 on the £200,000 ordinary shares. For the previous year a dividend of 10 per cent. and a bonus of 2½ per cent. were paid. Profit for the year, after taxation of £97,000, amounts to £76,500, against £69,200. General reserve receives £50,000 and the carry-forward is £66,240.

Potteries Motor Traction Co. Ltd.—The directors of the Potteries Motor Traction Co. Ltd. recommend a first and final ordinary dividend for 1950 of 5 per cent. (1949: interim 6 per cent. final 9 per cent., plus 5 per cent. bonus). After charging £76,937, against £65,433, for depreciation, the net profit for the year was £15,689, against £106,374. As in 1949, there is no liability for income tax by reason of statutory allowances on new rolling stock. The reduction in net profit is stated to be mainly due to a contraction in revenue and the doubling of fuel tax.

Savings Groups at Eastleigh Works.—At the Eastleigh works of British Railways the development of National Savings Schemes has been encouraged for some years, and it has always been the policy for the men to be allowed to run their own groups and clubs. Savings at Eastleigh totalled more than £10,780 in the six months ended March 31 last. There are in active operation at the present time ten Scheme 1 groups, three Scheme 8 groups, and 33 savings clubs, all operating through the Post Office Savings Bank. Total membership recorded at the March, 1951, half-yearly returns was 1,916, out of a potential of approximately 3,500.

Stewarts and Lloyds Limited.—Assets of Stewarts and Lloyds Limited expanded in 1950 by £3,572,143 to £36,274,623, and the net working capital increased by £2,762,773 to £16,375,539 in the same period. Untaxed group profits increased by about

11 per cent. at £8,648,662, although the actual gain of £844,668 was offset by the rise of £840,691 in the tax provision. A high rate of production was maintained in all departments and the production of steel tubes and Stanton spun-iron pipes were record figures. Steel production at 1,127,300 tons passed the 1,000,000 ton mark for the first time. Deliveries of steel tubes, also a record, amounted to 443,000 tons sold in the home trade, and 306,000 tons in the export trade. Earnings in terms of dollars amounted to over £4,000,000.

Costa Rica Railway Company.—The directors of the Costa Rica Railway Company announce that owing to the high cost of rehabilitating the line after the serious slides this year and the previous floods, the subsidiary company has not been able to remit any funds on account of rental in the current financial year, and the half-year payment of interest due on July 1 on the 6½ per cent. first mortgage debentures cannot be met.

North Central Wagon & Finance Co. Ltd.—An increase in group profit from £204,843 to £327,186 for 1950 is shown in the preliminary statement of the North Central Wagon & Finance Co. Ltd. The stock dividend on the £375,000 ordinary is maintained at 5 per cent., less tax. A special distribution of 7½ per cent., tax free, was paid last month out of realised accretions to capital; against 5 per cent., tax free, in the previous year.

Ribble Motor Services Limited.—The directors of Ribble Motor Services Limited recommend a final ordinary dividend of 10 per cent., plus a bonus of 5 per cent., making 25 per cent. for the year ended March 31 last, which is the same as before. Group profits, after allowing £49,027 for tax, were £330,611, £329,856 of which represented the net profit of the parent company. The board places £159,600, against £350,000, to general reserve, carrying forward £254,384 as compared with £251,778.

Scottish Region Stations to be Closed.—As from June 18, passenger train services will be withdrawn from Plains Station on the Airdrie-Bathgate line of the Scottish Region, when passengers for Plains will be booked to Airdrie from which point a bus service is available. Parcels and miscellaneous traffic will be collected and delivered by road motor based on Caldercruix. There will be no alteration in the arrangements for dealing with freight train traffic. Ratho Station also will be closed to passenger traffic from the same date. Parcels and miscellaneous traffic will continue to be dealt with at Ratho and will be conveyed by road.

Forthcoming Meetings

June 16 (Sat.).—Railway Correspondence & Travel Society, Nottingham Area tour, starting from Nottingham Victoria at 2 p.m.

June 20 (Wed.).—Permanent Way Institution, Manchester & Liverpool Section, visit to James Mills Limited, Bredbury, at 7 p.m.

June 22 (Fri.).—British Standards Institution, Golden Jubilee, Conversazione at the Natural History Museum, South Kensington, London. Reception at 7.30 p.m.

June 23 (Sat.).—Irish Railway Record Society, visit to Drogheda-Oldcastle branch, G.N.R.(I.)

Railway Stock Market

Although buying has been less aggressive than recently, gains have predominated in most sections of the stock markets, where sentiment was helped by a rally in British Funds which at one time took 3½ per cent. War Loan up to 89. Dividend announcements continued to stimulate industrials. Imperial Chemical, Vickers, Courtaulds, Dunlop Rubber and Guest Keen are among the leading firms which have increased their dividends, while those which the market assumes may also raise their payments include General Electric, William Cory, Powell Duffryn, T. W. Ward, and John Brown. The dividend increases are very small in relation to earnings and the bulk of net profits is added to reserves. Despite the uptrend in costs and shortages of materials, the market is in an optimistic mood, and is already talking of the prospect of further dividend increases next year.

There was a fair business reported in foreign rails. Antofagasta were again prominent; although earlier gains attracted profit-taking which brought the ordinary stock back to 9 and the preference to 59½. Canadian Pacific were active up to close on 554 following the raising of the interim dividend from 2 per cent. to 3 per cent. which has aroused market hopes that the total may be increased from 6 per cent. to at least 8 per cent. The directors point out that 25 cents of the 75 cents now declared as an interim dividend on the \$25 ordinary stock arose from railway earnings and the balance from other sources. A year ago the whole of the interim of 50 cents was attributed entirely to income from other sources.

Brazilian rail stocks have been less active although it is felt that there is now no reason to believe that shortage of sterling can account for the continued delay in payment of take-over money for the railways. Leopoldina stocks in fact continue to be quoted below their estimated pay-out levels. The ordinary has changed hands around 10½, the preference eased to 26½, the 4 per cent. debentures to 94, and the 6½ per cent. debentures to 140½. Leopoldina Terminal 5 per cent. debentures were 92½ and the ordinary units 15, 3d. Speculative activity lessened in Manila Rails, the "A" debentures easing to 74, while the 5 per cent. preference were 7s. 6d. Brazil Rail bonds were quoted at 90s. San Paulo 10s.

units strengthened to 15s. 1½d. United of Havana stocks encountered some selling which put the 1906 debentures back to 18. Nitrate Rails were 22s. 6d. and Taltal 17s. 10½d. La Guaira ordinary was 85 and Bolivar "C" debentures 58. Chilian Northern 5 per cent. debentures changed hands around 42½. Guayaquil & Quito 5 per cent. bonds at 530, and White Pass Yukon 6 per cent. debentures at 87. French railway sterling bonds were steady with Midi at 91½ and Seine at 102.

Road transport shares have been steady, financial results for 1950 being regarded as representing a good achievement, although it is recognised that in the current year the downtrend in earnings has been more marked and that the position will have to be adjusted by higher fares. Southdown at 102s. 6d. have remained steady in satisfaction with the results, West Riding were 53s., Lancashire Transport 61s. 3d., Devon General marked 6½, and Maidstone and District 6½ per cent. preference were 22s. B. E. T. deferred stock rallied to £550 on higher dividend hopes.

Engineering shares showed some good features with Guest Keen at 62s., Babcock & Wilcox 82s. 9d., B.S.A. 44s. 9d., and T. W. Ward 77s. 6d. John Brown rose to 52s. 6d. on talk that the dividend may be raised from 6½ per cent. to 7½ per cent., tax free. Vickers firmed up to 53s. 1½d. after easing on the statement at the annual meeting that expansion in business will not necessarily mean higher profits. Some time must elapse before there is a decision as to how compensation for English Steel nationalisation is to be dealt with. Apart from the likelihood that negotiations for hiving off certain English Steel assets will take some time there is the possibility of a change of Government and the end of nationalisation.

Locomotive building and kindred shares tended to attract more attention in the market where it is being pointed out that earnings of most companies last year were well in excess of the dividends paid and that there may be prospects of higher dividends in future.

Hurst Nelson were 59s. at Glasgow, Birmingham Carriage changed hands at the higher level of 40s., Beyer Peacock were 35s. 1½d., Vulcan Foundry 31s. 6d., and North British Locomotive 20s. Gloucester Wagon changed hands around 17s., Wagon Repairs 5s. shares were 15s. 10½d., and Charles Roberts 100s. 7½d.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date				
			Total this year	Inc. or dec. compared with 1949/50		Total	Increase or decrease			
						1950/51				
South & Cen. America	Antofagasta ...	811	1.6.51	£ 154,240	+	£ 91,960	22	£ 2,410,540	+	£ 1,050,050
	Costa Rica ...	281	Apr., 1951	c773,399	—	c79,560	43	c9,611,880	+	c1,162,459
	Dorada ...	70	Apr., 1951	33,926	—	5,369	17	142,034	—	23,732
	Inter. Ctl. Amer....	794	Apr., 1951	\$871,081	—	\$181,452	17	\$4,624,190	—	\$206,998
	Paraguay Cent. ...	274	1.6.51	£267,700	+	£32,424	48	£10,032,299	+	£72,741,996
	Peru Corp. ...	1,050	May, 1951	\$782,000	+	\$1,150,000	48	\$84,221,000	+	\$19,886,942
	(Bolivian Section)	66	May, 1951	Bs. 17,879,000	+	Bs. 8,708,000	48	Bs. 144,382,000	+	Bs. 37,699,336
	Salvador ...	100	Apr., 1951	c166,000	+	c18,030	43	c1,729,000	+	c105,000
	Taltal ...	154	May, 1951	\$2,256,051	+	\$685,126	48	\$18,869,332	+	\$3,218,865
	Canada	Canadian National†	23,473	Apr., 1951	16,818,000	+	2,159,000	17	64,458,000	+
Canadian Pacific...		17,037	Apr., 1951	11,648,000	+	1,721,000	17	44,384,000	+	6,731,000
Various	Barsi Light*	167	Apr., 1951	50,227	+	16,440	4	50,227	+	16,440
	Egyptian Delta ...	607	10.4.51	17,513	—	267	4	17,513	—	267
	Gold Coast ...	536	Mar., 1951	288,386	+	29,182	52	3,141,271	+	333,187
	Mid. of W. Australia	277	Mar., 1951	41,113	+	7,335	39	357,497	+	81,623
	South Africa ...	13,347	12.5.51	1,922,745	+	316,307	6	11,358,909	+	2,096,654
	Victoria ...	4,744	Feb., 1951	179,845	—	87,111	35	—	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1